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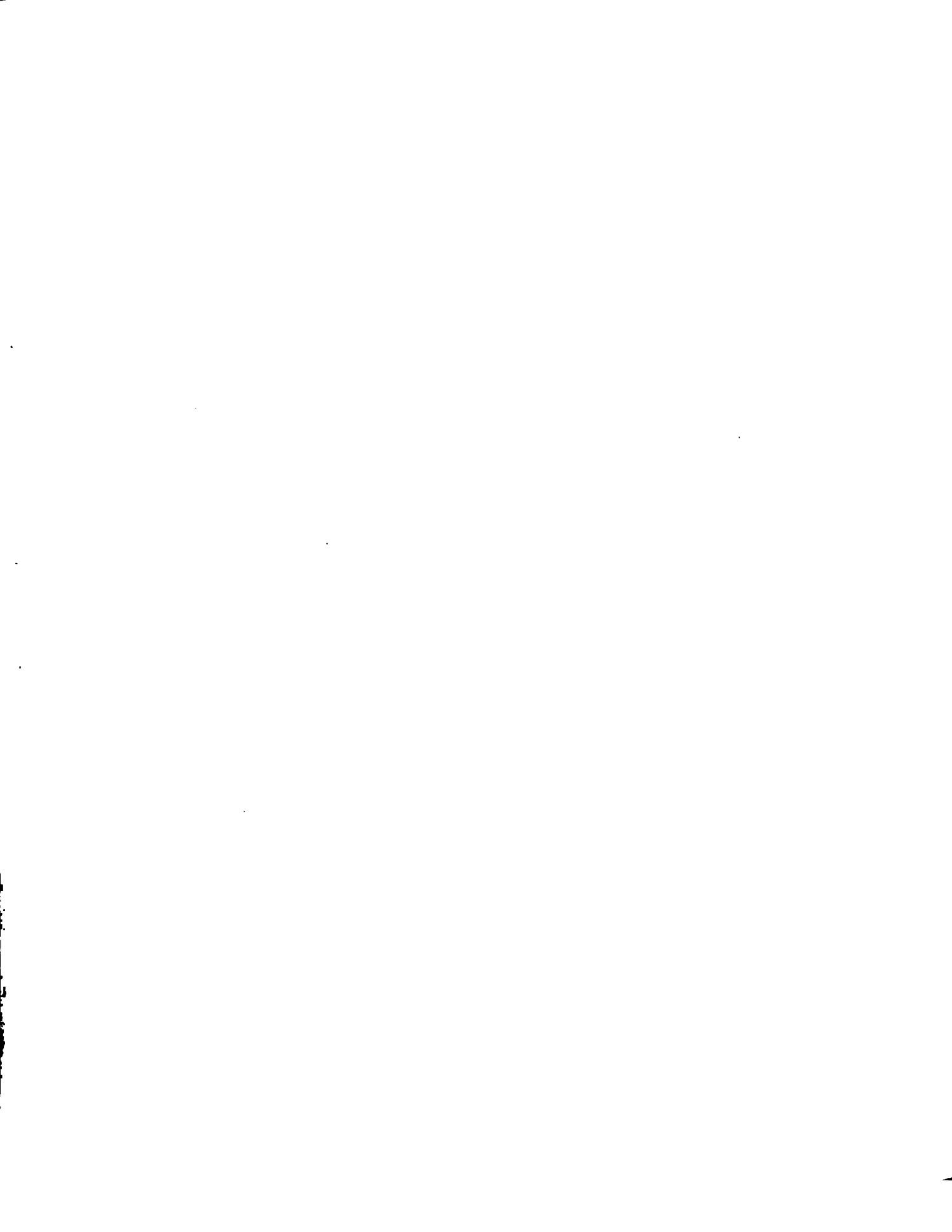
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**GENERAL VIEW**  
OF THE  
**AGRICULTURE**  
OF THE NORTH RIDING OF  
**YORKSHIRE.**

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*J. A. Park, 11" 257*

Bt. from Henry Stevens, Son & Stiles

**GENERAL VIEW  
OF THE  
AGRICULTURE  
OF THE NORTH RIDING OF  
YORKSHIRE,  
WITH OBSERVATIONS ON THE MEANS OF ITS IMPROVEMENT.**

**BY MR. TUKE, JUNIOR,  
LINGCROFT, NEAR YORK.**

**DRAWN UP FOR THE CONSIDERATION OF THE BOARD OF AGRICULTURE AND  
INTERNAL IMPROVEMENT.**

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## ADVERTISEMENT.

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THE following valuable communication, respecting the present state of Husbandry in the North Riding of Yorkshire, and the means of its improvement, drawn up for the consideration of the Board of Agriculture, is now printed, merely for the purpose of its being circulated there, in order that every person interested in the welfare of that county, may have it in his power, to examine it fully, before it is published. It is therefore requested, that any remark, or additional observation, which may occur to the reader, on the perusal of the following sheets, *may be written on the margin*, and transmitted to the Board of Agriculture, at its office in London, by whom the same shall be properly attended to; and when the returns are completed, an account will be drawn up, of the state of agriculture in the North Riding, from the information thus accumulated, which, it is believed, will be found greatly superior to any thing of the kind ever yet made public.

The Board has adopted the same plan, in regard to all the other counties in the united kingdom; and, it is hardly necessary to add, will be happy to give every assistance in its power, to any person, who may be desirous of improving his breed of cattle, sheep, &c. or of trying any useful experiment in husbandry.

## TO THE READER.

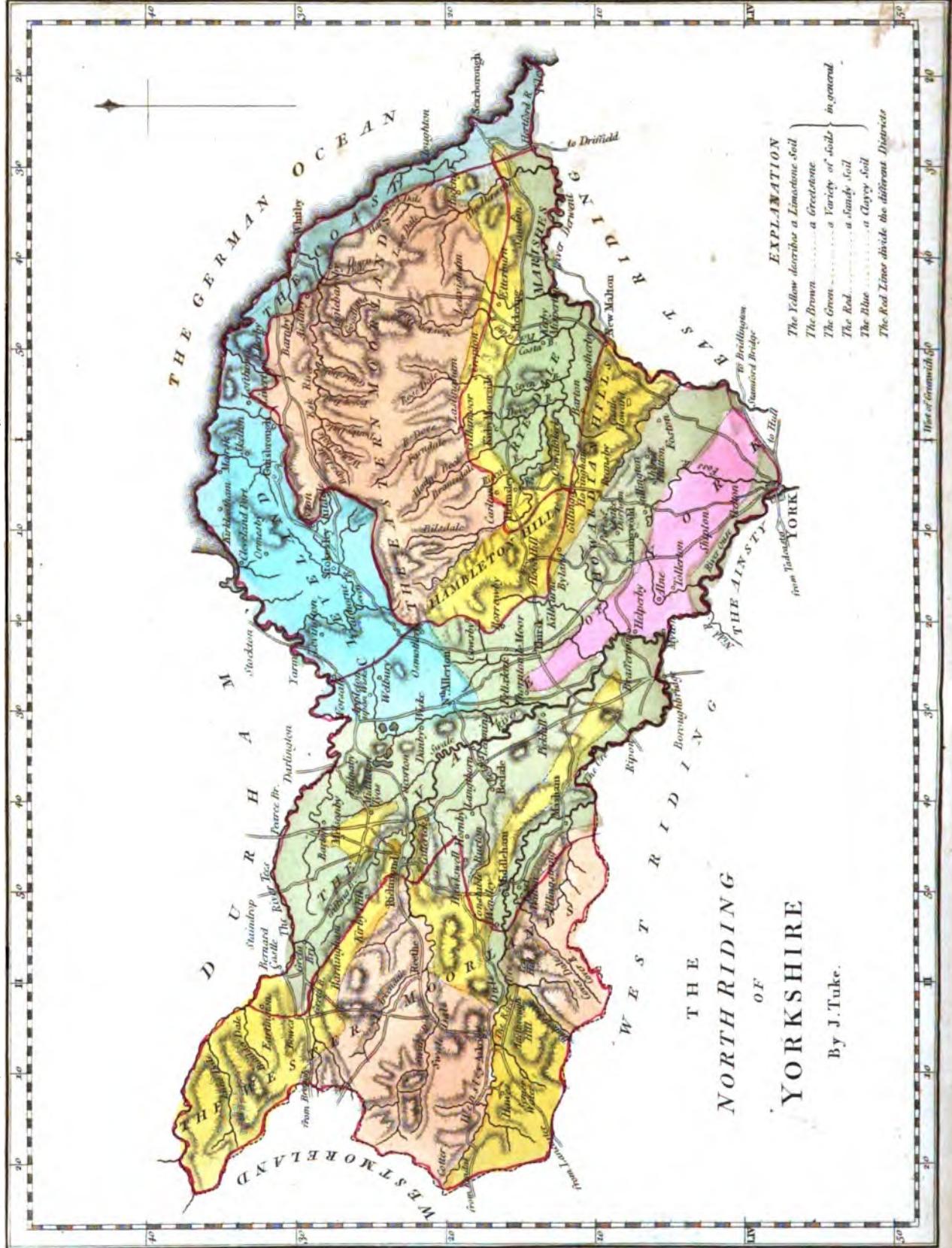
IT is requested, that this Paper may be returned to the Board of Agriculture, as soon as may be convenient.

It is hardly necessary to add, that the Board does not consider itself responsible, for any fact or observation contained in these Reports, which, at present, are printed and circulated, for the purpose merely of procuring additional information, and of enabling every one, to contribute his mite, to the improvement of his country.

*February, 1794.*



Engraved for M<sup>r</sup> Tuke's AGRICULTURAL ACCOUNT of the North Riding of Yorkshire.



By J. Tuke.

## INTRODUCTION.

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The North Riding of the County of York is situated between  $53^{\circ} 57'$  and  $54^{\circ} 38'$  north latitude, and between  $0^{\circ} 19'$  and  $2^{\circ} 23'$  west longitude of Greenwich. It is bounded by the county of Durham on the north, the German ocean on the north-east, the East Riding on the south-east, the Ainsty of York and the West Riding on the south, and the county of Westmoreland on the west, as the map hereto annexed will sufficiently shew. The length of the Riding from east to west, is 83 miles, the breadth from north to south 47 miles, and it contains about 2048  $\frac{73}{100}$  square miles, or 1,311,187 acres; of these about 442,565 are uncultivated; the remainder comprehends the inclosed lands, the open fields, the woods, and the roads.

As the climate, soil, and face of the country are very various, I have divided the whole into the following districts, and annexed the quantity of acres in each.

	Cultivated acres.	Uncultiva- ted acres.
The Coast	64,920	
Cleveland	70,444	
The Vale of York, with the Howardian hills, &c.	441,386	15,000
Ryedale, with the east and west Marishes	100,437	3435
The eastern Moorlands	102,000	196,625
Western ditto	90,000	226,940
	869,187	442,000

Total quantity of the North Riding, 1,311,187 acres.

*Rivers.*—The rivers and streams (provincially becks) of this district are very numerous; in consequence of so large a part

of the Riding consisting of a very elevated country, penetrated in almost every direction by vallies, each of which possesses its stream.

The principal of these is, first, the Tees, which rises between the counties of Westmoreland and Durham, beyond the north-west extremity of this Riding, and taking an easterly direction, divides it from the county of Durham through its whole extent, and is navigable for vessels of 30 tons, from the ocean to Yarm, where the tide rises about feet.

The Ure rises near the borders of Westmoreland, and collecting, during its course through the beautiful dale of Wensley, many tributary streams, flows for many miles, with a very rapid current within the North Riding; but about three miles below Masham, becomes the boundary of this Riding, dividing it from the West Riding, till it arrives at Ripon; from whence it takes a circuit of a few miles into the West Riding, but again becomes the division between the two, and so continues as long as it retains its name; this it loses about six miles below Boroughbridge, at the influx of an insignificant stream, that gives to the great river Ure its own name of Ouse, which at last, in its turn, is lost in that of the Humber. The Ouse continues to be the boundary of the North Riding, dividing it from the West Riding and the Ainsty of the city of York, till its arrival at York, where it entirely quits the North Riding. The Ouse is navigable for vessels of 120 tons as far as York, where the spring tides rise about 20 inches, but are spent about six miles above. The Ure is navigable for vessels of 30 tons as far as Ripon, where, on account of the rapidity of the stream, all prospect of navigation ceases.

The Derwent, rising in the eastern Moorlands within about 4 miles of the sea, and taking a southerly direction parallel to the coast, until it comes to the foot of the Wolds,\* there takes a west, and afterwards a south-west direction, and passes by the town of Malton, to which it is navigable from the Humber for vessels of

\* An elevated and extensive range of chalk-hills in the East Riding.

25 tons. It is the boundary between the North and East Riding, from its junction with the little river Hertford, till it arrives near Stamford-bridge, where it enters the East Riding.

The Foss, a small stream which rises near the western end of the Howardian hills, unites with the Ouse at York. It is supposed to have been a work of the Romans, executed for the purpose of laying dry an extensive tract of flat and very wet country, lying between the Ouse and Howardian hills; but if that was the original intention, it has long since ceased to be fulfilled, through the neglect of many ages, the course of the stream being almost entirely warped up: an act of parliament was, however, last year obtained, for restoring the drainage, and making a navigable cut from York to Stillington, a distance of about 14 miles; and the work is already entered upon.

The Swale, the Esk, and the Rye, rise and flow, for their whole course, within the North Riding: though considerable streams, they are scarce capable of navigation; for having their sources in very mountainous countries, they are shallow, rapid, and as well as all the other rivers and streams in the Riding, except the Wisk alone, liable to sudden, violent, and frequent floods; an act was some years since obtained for rendering the Swale navigable, as far as the vicinity of Northallerton, with a branch up Cod-Beck to Thirsk, and another up Bedale-Beck to Bedale; but the navigation never was completed, either for want of money, or an injudicious expenditure of it.

The Cover, the Greta, the Wisk, the Leven, the Riccal, the Dove, the Seven, the Costa, and a multitude of other streams, with which the Riding is watered, serve only the purpose of turning a few insignificant mills.

It is observable that the Rye, the Riccal, Hodge-Beck, the Dove, the Seven, and the Costa, are all ingulfed during their passage through the narrow range of lime-stone hills, which skirt the southern side of the eastern Moorlands; and again emerge at their foot, on the southern margin of Ryedale, after having

been lost for the space of from half a mile, to a mile and a half.

*Towns.*—In this Riding are 19 market-towns, *viz.* Askrigg, Bedale, Easingwold, Gisbrough, Hawes, Helmsley-Blackmoor, Kirby-Moorside, Malton, Masham, Middleham, Northallerton, Pickering, Reeth, Richmond, Scarborough, Stokesley, Thirsk, Whitby, and Yarm; and about 450 villages.

## *SURFACE, CLIMATE, SOIL, AND MINERALS.*

*Coast.*—The district described by the term *Coast*, comprehends the cultivated land lying between the eastern moors and the ocean. It is hilly and bold, and from its situation cold and bleak; but in some of the vales, which are sheltered both from the westerly winds and the sea air, corn ripens well. The cliff of the coast is generally from 50 to 150 feet high; the foot of which is in some parts always washed by the sea, and in all parts at high tides; from this cliff the country rises very rapidly, in the space of from half a mile to a mile, to the height of 300 or 400 feet.

*Soil.*—The soils are a brownish clay, a clayey loam, a loam upon a strong clay, a lightish soil upon an alum shale, a loam upon a free-stone,\* or, as it is here called, a greet-stone; and in some vallies west of Whitby, a deep rich loam.

*Minerals.*—The hills along the coast abound with alum shale; and works for procuring this mineral, are carried on in several parts of it; no other minerals have yet been found.

*Cleveland.*—The fertile district of Cleveland lies on the north-west side of the eastern moors; from these it is divided by a range of cliffs, from which I suppose it derives its name. It is lightly featured with hills, and has few fields, except near the sea, which have not a gentle slope. The climate of it, from its situation betwixt the eastern Moorlands and the sea, and from lying open on the west to the winds, from an extensive, uncultivated, and mountainous country, is cold, but the soil becomes dry and very stiff, by a long state of aration, and the frequent use of lime, bakes with the heat of the sun, and hastens harvest to the time of warmer climates.

\* By a free-stone, or greet-stone, is meant a silicious or vitrescent sand-stone, in opposition to a calcarious stone or lime-stone.

*Soil.*—The soil is generally a fertile clay, with some clayey loam, and fine red sandy soil; the last of which is chiefly to be met with between Marske and Worsall, and about Levington and Crathorne. Near the moors, particularly in the neighbourhood of Kildale, is a good deal of deep rich loam.

*Vale of York.*—This extensive vale has the Moorlands on each side, except where it opens into Cleveland, or is separated from Ryedale by a range of hills, called (by Marshall in his *Rural Economy of Yorkshire*) the Howardian hills. From the river Tees at the head of it, is a gradual slope, though with some irregularity of surface, and some rather bold swells, quite to York, where it sinks into a perfect flat. The climate of those parts which are near the moors, is rather cold, from their exposure to them, and increased elevation; but in other parts mild and temperate.

*Soil.*—To give an accurate account of the soil and fertility, which are extremely variable, it is necessary to traverse the the country, and describe the soils in each part.

The level land near the river Tees, consists in general of a rich gravelly loam.

Upon the high ground, on the west side of the road leading from Catterick to Pearce-bridge, the soil is for the most part strong, and generally fertile, but in some places, cold and springy: some fine hazle loam is also to be met with.

On the south side of the road, leading from Greta-bridge to Catterick, is much fine gravelly soil, with a considerable quantity of clay, and some peat; and on the north side of Richmond, a mixed loamy soil, in most places upon lime-stone, but in some upon a free-stone most excellent for building.

On the east side of the road, between Catterick and Pearce-bridge, there is some cold thin-clay, upon what is here called a moorband; \* there is also some gravelly and some clayey loam, part of which is cold and springy.

\* This stratum, which is from 6 inches to a foot thick, is of a ferruginous ochreous appearance, probably containing much iron, and wherever found is attended with great sterility.

About Barton, Melsonby, and Middleton Tyas, the soil is loamy upon lime-stone. About Halnaby, and from thence, in an easterly direction to the edge of Cleveland, and all the way betwixt the Wiske and the eastern Moorlands, as far south as Borrowby and Thornton le Moor, is for the most part cold, clay soil; though in some places less tenacious soils, mixed with large quantities of large cobble-stones, or pebbles of various kinds, are to be met with.

On the West side of the road, between Richmond and Leeming, a good gravelly soil prevails; towards Hornby, a good gravelly clay; at Langthorn, a good sandy loam and some peat.

The land on both sides the brook, which runs from Constable-Burton past Bedale, consists for the most part of a rich loam, but is in some places gravelly.

The country betwixt the above mentioned brook, and the West Riding, and on the West side of the road from Boroughbridge to Leeming, is generally a turnip soil, though of various qualities, consisting of a loamy soil upon lime-stone, a gravelly loam, and a rich hazle loam; except that in some parts there are patches of swampy ground, and cold clay land. That corner of the vale east of Middleton Tyas, and west of the Wiske, and north of a line drawn from Scorton to Danby Wiske, is mostly cold and wet, some of which has a moorband under it; but on the west side of this tract there is some clayey loam, of pretty good quality, and a little excellent gravelly loam, which last is chiefly employed as grazing ground.

On each side of the river Swale, and between that river and the Wiske, and south of Scorton and Danby Wiske, to the junction of the Ure and Swale, is a very fertile country; consisting of rich gravelly loam, and some fine sandy soil, with, in some places, very good clay soil, of the last of which the country for a few miles north of Pickhill chiefly consists; nevertheless, there are some patches of cold clay soil, and also a little peat here and there scattered through the whole of this part of the district: on the banks of the Swale are many very rich grazing grounds.

For a few miles north of Thirsk, there is some fine, rich, strong loamy land.

On the north-west side of Thirsk, begins a vein of sandy soil, which runs near the rivers Swale and Ouse, until it comes within about 10 miles of York ; where, leaving the river, it passes York a few miles to the north, and extends to the river Derwent ; it is in most places four or five miles broad, and in general leaves only a narrow strip of rich grazing ground adjoining the rivers Swale and Ure : about Myton, Brafferton, and Helperby, the sand is of a dark colour, and remarkably fertile ; but in general this sandy tract is barren and wet, a considerable part of it lying very flat. About Shipton and Skelton, fine sandy loam prevails ; but on each side of York (south of the sandy tract, and to the boundary of the Riding), is a good strong clay, or loamy soil.

The country between the above described sandy soil and Hambleton, from Easingwold to Thirsk, is in general a strong retentive clay, in some places full of cobble-stones, a little good loam upon lime-stone, some fine sandy soil, and wet springy sand, being occasionally intermixed ; near the rivulets the soil is in general strong, upon a strong bed of gravel ; near the south foot of Hood hill, under Hambleton hills, is a bed of petrified matter, two or three feet thick, and below that, a rock of remarkably hard porous lime-stone, of a light colour.

The country betwixt the tract of sandy soil above described, and the Howardian hills, is in general level, the soil varying in all degrees, from a strong clay to a sand ; the clay in some places good, in others poor, thin and cold ; near the Derwent is some fine loamy soil.

*Minerals.*—There has lately been found near Thormanby, between Easingwold and Thirsk, a bed of coal ; what has yet been raised is of an ordinary quality, heavy, sulphureous, and burning to white ashes ; but there is expectation of a better seam below, in quest of which they are now sinking.

*Howardian Hills.*—This range of hills which runs from west to east dividing the Vale of York from Ryedale, is high

and bold ; the climate, particularly of the west end, from its vicinity to the moors, and greater elevation, is cold, and the corn consequently rather late in ripening.

*Soil.* — The soil on the west end of this tract, is mostly a good strong loam upon a clay mixed with cobble-stones ; about Gilling, and towards Bransby, thin and poor, in most places near to a greet, though in some to a lime-stone rock ; but on the southern side of these hills, a good clay and loamy soil prevails : from Bransby to Sheriff Hutton, the soil is generally a rich clayey loam ; the valley on the north side of Sheriff Hutton consists of a clayey loam upon a bed of strong gravel, and lower down has some peat ; the hills rising from the northern side of that vale are mostly of a rich strong soil ; but on their north-eastern extremity quite to the Derwent, it is light and fertile upon a lime-stone rock ; the northern verge of these hills is a thin loamy soil, in some places rather sandy, in others gravelly upon a lime-stone rock, or rubble.

*Minerals.* — Upon Gilling Moor, south of Helmsley, some pits have been sunk for coals ; but the quality has proved so ordinary, and the seams so thin, as not to encourage a further search.

*Ryedale, with the East and West Marishes,* — Form one vale, Pickering-Beck dividing Ryedale from the Marishes ; the surface of the lower parts of Ryedale is very flat, and a large proportion of it liable to be flooded, the waters being much retarded and kept up by a mill of little value at Newsham, and by the extreme curvature of the river ; the bridge at Kirby Misperton also contributes much to keep up the floods, it has only one arch, which is quite insufficient to admit the quantity of water which comes down after heavy rains ; an additional arch might be built at a very moderate expence. In many places the Rye and the Derwent, as well as the smaller streams falling into them, have been embanked, but almost always injudiciously, not upon any regular plan, and without leaving sufficient fore-shore ; the consequence has therefore been, that by contracting the passage for the water, the force, rapidity, and height of the stream, have

greatly augmented, the probability of the banks breaking increased, and when broken, of doing additional injury, particularly in the summer time ; and where both sides of the river have not been embanked, of throwing with increased power an accumulated weight of water on the opposite shore. The flat is broken by several insulated swells of considerable extent and elevation. On the north side of the dale, the surface rises with a moderate ascent for three or four miles to the moors, which break down abruptly from it. The climate is mild, and favourable to the production of crops in an extraordinary degree.

*Soil.*—The soil at the foot of the northern margin consists of a hazel loam, upon a clay bottom, or a deep warp or silt upon gravel or clay ; this warp, evidently washed down by the floods of many former ages, from the higher country ; these are soils of extraordinary fertility ; some cold clay, and yellow loamy soil, mixed with sandy cobbles of less fertility than the last, are in some places to be met with.

The detached swells are a rich strong clay, one excepted, which is sandy.

The northern margin of the vale is chiefly a deep loamy soil, upon a reddish ill-formed stone, which will not burn into lime, and is not capable of being worked as a free-stone ; but under which is a lime-stone of extreme hardness, and much resembling the Derbyshire marble ; toward the eastern end of the margin, we meet with a sandy loam upon gravel ; as the moors are approached, the soil becomes less fertile and more stiff, though still upon lime-stone, and in some places it is yellow sand.

The soil of the Marishes is chiefly clay, with some sandy loam, gravel, and peat ; the whole very low and very wet, in consequence of the river being very crooked, much choked, insufficient for the floods, and dammed up ten feet at Old Malton Mills, by which means about 11,000 acres of land, which, if dry, would be very valuable, are greatly injured, or rendered totally useless.

*The Eastern Moorlands.*—This wild and extensive tract of mountains, which occupies a space of about 30 miles by 15 or upwards, is penetrated by a number of fertile cultivated dales.

The great altitude of these moors, renders the climate extremely cold and bleak, which will always be a bar to their improvement. The surface of some of the higher hills is entirely covered with large free-stones ; on others large beds of peat, (which in many places are very deep, frequently not to be passed, and never without danger), extend themselves to a great distance ; the produce of which is always ling (*erica tetralix, vulgaris, & cinerea*), but in some places mixed with bent (*juncus bulbosus*), and rushes (*juncus effusus*). Near to the old inclosures, some pretty considerable tracts of loam, and sandy soil, producing furze (*ulex Europaeus*), brakens (*pteris aquilina*), thistles and coarse grass, with but little ling, are to be met with. But wherever ling is the chief produce, the top soil is invariably black moor or peat, in some places of a firmer texture than in others. In the sub-soil, is considerable variety : in some places a yellowish, in others a reddish clay occurs ; a loose red free-stone rubble, upon either a rock or clay, is very common ; in some places a kind of rotten earth, inclining to peat,\* and also an hard cemented reddish sand, and a grey sand are found. The basis of all this district is invariably a free-stone:

The western end of these Moorlands, which is called Hambleton, is very different from those above described ; it is generally a fine loamy soil upon a lime-stone rock, producing a large quantity of coarse grass, and bent in some parts, particularly towards the south-east point, mixed with some ling.

*The Minerals*—are coals and alum ; the first of but an ordinary quality, and thin in the seam ; the last of great thickness, inexhaustible in quantity.

The cultivated dales situated amongst these moors, are pretty extensive, some of them containing from five to 10,000 acres ; and Eskdale, and Bilsdale much more ; the bottoms of the vales are mostly narrow, seldom more than 200 yards ; but the land is

\* Where this sub-soil is found, the ling is very large and strong, mixed with bent, and very luxuriant rushes.

generally cultivated from half a mile to a mile up the hills, though the surface is in many places very irregular.

The climate is colder than in the country surrounding this district, yet corn will ripen very well, where sown in pretty good aspect.

*Soils.*—Most of the dales partake more or less of the following : a black moory earth upon a clay, a loam upon a clay, a sandy soil in some places, intermixed with large greet-stones, upon a shale, and a light loam upon a greet rock ; but in the neighbourhood of Hackness, on the eastern part of the moors, we find in some instances, on the hill sides, a rather stiff loam upon lime-stone, and a deep sandy loam upon a whin-stone ; and in the bottoms, a light loam upon gravel or free-stone.

*The Western Moorlands*—Are a part of that long range of mountains, which extend northward from Staffordshire through Derbyshire, Yorkshire, Lancashire, Westmoreland, and Cumberland, into Scotland ; that part of it which lies within the North Riding, differs materially from the Eastern Moorlands ; instead of black ling, we find many of the mountains covered with a fine sweet grass ; others with extensive tracts of bent ; some produce ling, but it is mostly mixed with a large portion of grass, bent, or rushes.

*Soil.*—In the lower parts of these moors, is some fine loamy soil, in many places a stiff loam, upon a hard blue lime-stone. The hills covered with grass, consist, with scarce any exception, of lime-stone. The bent generally covers a strong soil lying upon greet, or free-stone rock ; the black ling, a reddish peat, upon a red sub-soil, or in many places a loose greet rubble, beneath which is a greet rock. The climate of these moors is colder than that of the eastern moors, the altitude being much greater, but I apprehend not less favourable to vegetation ; the western moorlands not being exposed to the sea air, as the eastern are, though snow lies much longer upon them ; they are also much more liable to rain.

*Minerals.*—There are many lead mines upon these moors,

some of which have been, and others still are, very valuable. Coals are also got in divers parts, but they are not good.

Many of the dales which intersect these moors are very fertile, of which Wensley Dale may be ranked the foremost, both for extent and fertility; the bottom of it consists of rich grazing grounds, through which the river Ure takes a very serpentine course, forming in many places beautiful cascades. From the bottom of the valley the hills rise with a moderate slope, though with a very irregular surface, to an amazing height, and are inclosed for a mile or a mile and an half from the river. Through those on the south side of the dale, several small dales open into the larger.

The soil of Wensley Dale, on the banks of the river, is generally a rich, loamy gravel; on the sides of the hills, a good loam, in some places a little stiff, and generally that, upon a lime-stone, is predominant; some clay and peat also occupy a part of them.

Swale Dale is the next to Wensley Dale in extent, but falls far short of it in beauty, the bottom being narrow, and the hills steeper than in Wensley Dale, but the soil is in some parts not much inferior in fertility; in the lower parts a rich loam prevails, which is in some places gravelly; on the hill sides, a thin loam upon greet, and in some places upon lime-stone, and some clay and peat moss are met with.

The other dales, though much smaller than those above described, are very similar to them in their soils; and several of those, whose streams empty themselves into the river Tees, are very fertile.

#### *ESTATES, AND THE GENERAL MANAGEMENT OF THEM.*

The size of estates in this Riding is very variable; about one-third of it is possessed by yeomanry, the remainder is divided in-

to estates of various sizes, from £ 500. to £ 15, or 16,000. per annum. Much the largest proportion of the dales on the moor-lands is in the possession of yeomanry, in estates generally below £ 150. per annum.

The tenure of the country is freehold, with some few instances of copyhold property, and some of leasehold for 1000 years, or other long term of years.

The tenure of the occupiers of the ground is almost universally that of tenants at will, that is, holding from year to year ; though there are a very few leases for years, and some for three lives, renewable at the fall of every life ; these last are chiefly held under the church, or other corporate bodies.

*Leases.*—Very few leases are granted, especially by the owners of large estates ; but there is one gentleman, the owner of an estate near Scarborough, who is on the point of letting leases for fourteen years. The conditions of these, and the scale of husbandry annexed thereto, not being in the common line, I shall here insert.

“ The landlord agrees to let to the tenant, his executors, administrators, and *limited assigns*, a certain farm for the term of 14 years, with all its rights and appurtenances ; reserving all mines, quarries, and royalties, and all timber and other trees, &c. with full power to view, search for, cut down, and carry away the same at seasonable times of the year, paying such compensation for damage, as two indifferent persons of equal degree shall award and direct. The landlord also reserves liberty to enter upon the said premises, to view their repairs and condition, and also for himself and attendants, to take and pursue the game thereon, at his will and pleasure.

“ The term commences the fifth day of April, and continues after the expiration of the term of 14 years, from year to year, so long as the landlord and tenant shall please.

“ Provided always, that if the rent of the said premises before reserved, or any part thereof, or the other occasional rents, shall happen to be in arrear and unpaid, by the space of twenty days, next after either, or any of the said days or times, whereon

the same shall become due and payable, being first demanded; or, if the conditions, covenants, and agreements herein contained, are not duly performed and fulfilled by the said tenant, his executors, &c. thenceforth the lease shall be void.

" The tenant agrees to pay his rent by equal portions, on the 10th day of October, and 5th day of April, free from all taxes and impositions whatsoever, parliamentary or parochial (except the land-tax), the first payment to be made on the 10th day of October next ensuing, after the execution of the lease. Also to pay all taxes and impositions, parliamentary or parochial, which shall during this demise be laid or assessed upon the said premises.

" And also yearly, and every year during the demise, to lead or carry with their teams, on the customary days called boondays, to the hall or chief house, such articles as have been customary, or shall be required; and to perform all other suits, services, duties, and customs of any kind, which are, or shall at any time be taxed, charged, or imposed upon the premises. The tenant to pay, with remedy and recovery by distress and sale, upon default of payment, the several additional rents hereinafter mentioned; that is to say, £ 10. for every acre, and so in proportion after that rate, for every greater or less quantity than an acre, which he, his executors, administrators, or limited assigns, shall, contrary to the mode or course of agriculture and management, prescribed and expressed by the indorsement, signed by the parties, plough, dig up, pare, burn, or keep in tillage, or otherwise convert into arable, without the special leave or consent of the landlord in writing, first obtained.

" Also to pay yearly during the said term, on the half yearly days of payment aforesaid, over and above the rent, the sum of ten pounds for each and every acre of the premises hereby demised, and so in proportion for any greater or less quantity than an acre, if he, his executors, or administrators, shall at any time during this demise, directly, or indirectly, demise, let, or assign over, or otherwise part with, his or their interest therein, wholly or in part (other than a cow-gate to a cottager, holding under

the said landlord) without the special licence and consent of the said landlord, in writing under his hand, first had and obtained for that purpose.

" Also to pay ten shillings for every acre of land sown down for turnip-seed which shall not be hoed, or shall be improperly hoed, or weeded contrary to good husbandry ; or shall be eaten off, or depastured with any other cattle than sheep.

" Also to resort with his corn to the lord's mill, and to perform and observe all such rules, ordinances, and by-laws, as have been, or may be agreed upon, at the court leet and court baron held for the manor ; and to consume and eat with his cattle on the lands, or some part thereof, all the grass, hay and straw, which shall yearly grow upon the same, except what may remain in the last year of the said term, which shall be eaten betwixt Ladyday and Mayday next after the determination of the said term, upon such part of the demised grounds as shall be allotted or appointed for that purpose by the landlord ; and not to sell, carry away, or dispose of any of the manure, dung, or compost, which shall be made on the premises, but shall make use of the same upon his lands ; and shall leave the last year's manure, straw, dung, and compost produced thereon, for the benefit of the farm, receiving such compensation for the same as hereafter mentioned.

" Also to preserve, and defend from cattle and other damage, all young trees and quickset-fences, which are growing, or during the continuance of the demise, may be set and planted upon the premises. And not to burn any fern, or whins (furze) to ashes, in order to sell them to the boilers, or makers of soap, or any other person whatsoever, without the special licence of the landlord in writing.

" Also, at his own proper cost, to employ such mole-catcher for the destroying of the moles, within the said premises, as the landlord shall, from time to time, appoint and approve.

" Also, at his own cost, sufficiently to cleanse and scour one-sixth, or such other part of the ditches and water courses, at least once in every year, as the landlord shall direct. And to uphold

and keep in repair, all the houses and buildings on the premises (such houses and buildings being first put into repair, and the helms or shades covered in, at the expence of the landlord).

" Also not to sow down any part of the premises with rape, hemp, flax, woad, weld, madder, or hops, without leave in writing for that purpose, first had and obtained from the landlord ; and not in any one year during the demise, to plant *with potatoes any greater quantity than one acre and an half of ground* ; and that in the same field sown, or intended to be sown with turnip-seed, and no where else ; and not in the last year of this demise, to sow down with wheat, any greater quantity than one-fourth part of the land occupied, in the regular prescribed course of tillage, the crop of which shall not be taken away from the premises, but shall be left for the benefit of the farm, such compensation being paid for the same, as thereafter mentioned. And that after the lands shall be brought into a regular course, by the method or mode prescribed by the indorsement, not to have more from that time forward, than one-fourth of the land in tillage sown down with wheat, in any one year during this demise.

" Also during the continuance of the lease, not to stock any part of the lands with rabbits.

" The landlord agrees to allow the tenant, his executors, &c. on his leaving the farm, *for the cloots of turnips and wheat*\* sown in the last year of this demise, and for the manure produced in such last year, and also for such part of the hay and straw, as shall not be eaten and consumed, such price, as two indifferent discreet persons, chosen by the landlord and tenant as arbitrators, shall award and direct ; whose determination shall be final and conclusive ; the crop of wheat to be viewed and valued in the month of August or September, before the cutting of the same ;

\* That is, for the improvement that shall have been made by preparing the land for a crop of turnips, and by having eaten the turnips upon it, during the winter preceding the 5th day of April, when he quits his farm ; and likewise for his expences in cultivating the land, and sowing it with wheat in the preceding autumn ; and if sown upon a fallow, then to allow a year's rent, exclusive of the above expences.

the tenant paying, or allowing out of the money so to be awarded for the land so sown down with wheat, one year's rent, clear of all deductions.

" Also that the tenant may have for the use of the farm and premises (only) from the quarries, any quantity of lime-stone, paying to such person as shall be appointed to get up the same, the sum of fourpence for each waggon load.

" They mutually agree, that in case of any difference, about any matter respecting the demised premises, which is not before provided for, it shall be determined by arbitrators and an umpire, chosen in manner aforesaid. And that it shall be lawful for the new, or oncoming tenant, his servants and workmen, with, or without horses, or other cattle and implements of husbandry, at all times in the proper season, between Michaelmas and Lady-day in the last year, to enter upon the said premises, to dress the meadow and pasture ground, and to plough and work such part of the land, as shall by the said scale of husbandry be specified to lie for the next summer fallow; and to plough and sow with spring corn, such other part as shall not have been fallowed the preceding year & or, as it shall be necessary, in the course of tillage, to sow down with such grain, without paying or allowing any thing for the same to the tenant.

" And lastly, for the true performance of all the covenants, &c. herein contained, the tenant binds himself in the penal sum of three hundred pounds.

## SCALE OF TILLAGE.

No.	Quantities.	Year 1780	1781	1782	1783	1784
	A. R. P.					
1	2 3 22	Turnips	Oats, with grass seeds	Grass		
2	4 2 26	Oats	Fallow	Wheat	Turnips	Oats, with clover
3	3 0 36	Barley, turnips	Oats, potatoes	Do.	Do.	Do. Do.
4	3 3 33	Fallow	Wheat	Turnips	Oats, with clover	Clover
5	3 3 0	Do.	Do.	Do.	Do.	Do.
6	5 1 19	Wheat	Oats	Fallow	Wheat	Turnips
7	2 0 11	Do.	Do.	Do.	Do.	Do.
8	5 1 22	Do.	Turnips	Oats, with clover	Clover	Wheat
		Grass	Grass	Oats	Fallow	Do.

" Succession of tillage, after the completion of the above scale.

*First*—Turnips, with one acre and an half of potatoes in same field.

*Second*—Barley or oats, with clover seeds, fourteen pounds to each acre.

*Third*—Clover, the first crop mowed, the second crop eaten off with sheep.

*Fourth*—Wheat, on the clover stubble.

" In laying down the land to grass, not less than one quarter of hay seeds, and twelve pounds of dressed seeds, such as red clover, white clover, rib grass, and trefoil, to be sown on each acre.

" N. B. Since the above scale was adopted, it has been found that the land will not bear the clover husbandry in a constant round; therefore, it has been changed to turnips, barley, or oats, grass seeds three years, and then to be ploughed up for wheat.

## " PENALTIES IN THE INDORSEMENT.

Tenant, to lay three chaldrons of lime (each chaldrone consisting of 32 bushels) on each acre designed for turnips, or £. s. d.  
fallow for wheat, or pay for each chaldrone omitted      o 10 o

To consume on the premises all the hay, straw, and  
manure, or pay for such a load of hay sold, or  
carried off    2 o o

A thrave of straw, do. do. 2s. cart-load of manure 5s.      o 7 o

N. B. To have ground assigned him whereon to eat  
(between Ladyday and Mayday) what hay and  
straw may be left unconsumed of the last year.

To employ the mole-catcher as before mentioned, or  
pay for each acre of ground contained in his farm      o 1 o

For every sale, or lot of brakens for burning, (with-  
out leave) to pay    10 o o

Working or digging any mine or quarry, to pay              10 o o

" To plash hedges at such seasons as the owner or  
steward shall appoint, and in the mean time to  
keep the young hedges properly weeded ; or for  
every year it shall be omitted, to pay                        10 o o

" To pay such sum of money for repairing such buildings (as  
were in good repair at, or put in repair since, the time of entering)  
and for repairing such fences as shall be estimated by proper  
workmen, to be appointed by the owner, receiver, or steward, af-  
ter the arbitrators, or umpire have determined whether they are  
or are not in proper repair, &c.

" For neglecting to thatch all, or any part of the houses or  
out-houses, to pay such a sum of money as will completely re-  
pair the same ; to be estimated by a thatcher, or other proper  
judge, to be appointed by the owner, receiver, or steward.

" For felling or lopping any kind of trees (except hazles and  
thorns for hedging, in the places to be assigned him) to pay  
treble the value of such trees."

The tenant being bound "to resort with his corn to his lord's mill," appears to be an improper tie; for if the tenant suspects the miller's honesty, or if he does not do his business properly, it is unreasonable that he should be bound to employ him; and checks also in the miller, that obligation and gratitude which he ought to feel towards his employers.

The scale of husbandry annexed to the lease, (with a proper liberty to vary as seasons may require), I think an excellent plan.

In the northern part of the Vale of York, I met with another lease of a farm of about £ 550. per annum, some of the covenants of which, not being very common, I shall here insert.

"The landlord agrees to let to the tenant the specified premises, at the rent therein mentioned.

"The buildings, fences, gates, &c. to be all in good repair, at the time of entry.

"Tenant agrees to pay all taxes and assessments, excepting land tax.

"Also to keep all buildings, fences, and gates, in repair (casualties by fire, or violent storms of wind, excepted) the landlord finding all materials for repairs.

"Also sufficiently to hedge, ditch, drain, trench, fence, cleanse, scour, and keep up, all the hedges, ditches, drains, trenches, and fences, belonging to the premises: and within two calendar months after notice shall have been given him so to do, or to repair any of the said buildings, &c. in case of default therein, that it shall be lawful for the landlord to employ proper labourers to do such repairs, &c.; and that the landlord may enter into the said premises, to distrain for all such expences, and at the end of five days, to appraise, sell and dispose of the same.

"Also to carry all the bricks, timber, and other materials used in repairing, provided the distance does not exceed five miles from the said farm house.

"Also to make all such new fences, ditches, or drains, as his landlord shall think proper, the landlord finding quickwood and young trees, and paying half the workmanship of making such new fences, &c.

" Also to use and spend upon the premises all the hay, straw, turnips, or clover, which shall grow upon, or arise from the said premises; and that all the dung, &c. arising from the hay, straw, &c. consumed in the first twenty years of the term, and all the ashes and manure produced in the messuages, &c., shall be laid and spread upon the pasture and meadow ground, and that the dung, &c. made in the last year of the said term, shall be left for the use and benefit of the landlord, or the on-coming tenant, without any allowance for the same.

" Also that a fourth part of each portion, or division of arable land shall be summer fallow, or turnips, and shall have laid upon it not less than two chaldrons of lime per acre. One other fourth part barley, after turnips, with which twelve pounds of clover seed shall be sown, and which shall continue in clover 18 months from the time of sowing. One other fourth part shall be wheat, or oats, after clover, which shall be succeeded by fallow.

" Another arable part of the said farm, shall be one-fifth a summer fallow, with two chaldrons of lime per acre. Another one-fifth wheat, or spring corn after the fallow, with which shall be sown four pounds of white clover, five pounds of rib grass, three pounds of trefoil, and six bushels of hay-seeds; which shall continue as pasture two years, from the time the wheat crop is taken off the ground, which may then be ploughed out for wheat, or spring corn, and the next year fallowed.

" Another arable part of the said farm shall be managed as the last, only divided into six parts, and the grass shall lie three years. The penalty for non-performance of the above course of husbandry, five pounds per acre, for all the land not so managed.

" Not to plough, or dig up any of the old grass land (except what is mentioned in the said lease) under penalty of five pounds per acre, to be paid as an advance of rent yearly, during the remainder of the term.

" If the tenant shall pare and burn, he shall lay on the land  $1\frac{1}{2}$  chaldron of lime per acre; the same year it is pared and

burnt; in default of laying on that quantity of lime, to pay the last mentioned penalty, for every acre, more or less, not so managed.\*

"Also not to keep a larger number of cattle upon the farm the last year of the term, than has usually been kept."†

In the northern neighbourhood of Richmond, there are many leases granted for seven or fourteen years; but the covenants are not singular, but generally bind the tenants to scour annually one rood of ditching for every pound rent, and some not to take two crops of corn successively, and not to plough out any fresh land without leave.

Where leases are not granted, special covenants are sometimes entered into; but often no others than that the tenants shall not plough out fresh land without leave: and in the northern part of the Riding, tenants generally covenant to lay a certain quantity of lime on their fallows, at the rate of from one to  $2\frac{1}{2}$  chaldrons per acre. Nevertheless, there are, upon a few estates, other clauses which I shall here insert.

Upon one estate in the northern part of the Vale of York (not let upon lease) tenants covenant, not to sow two crops of white corn together.

Also to give *one year's notice* of quitting the farm, and that year *not to make the fallow for the next*; the landlord reserving a liberty for himself, or his on-coming tenant to manage such fallow.

The tenant also to pay his whole year's rent the Michaelmas preceding the leaving his farm, who consequently has *no way-going crop when he leaves the premises*.

In these covenants there are some things very new, particularly

\* An excellent covenant: it has been found by experience, that lime acts most powerfully upon land that has been lately pared and burnt; and wherever paring and burning is allowed, it ought only to be on condition of using a proper quantity of lime.

† A very fair covenant for the off-going tenant, and no more than what is due for the on-coming one to have.

in that of the tenant not managing the fallow in the last year. It is desirable, if it can be done, for the tenant to have no right or interest in the farm at the time he quits it; for it is always unpleasant to an on-coming tenant, to have the old one about his premises, for so long a time as is necessarily the case, in some modes of entry and quittance. The above covenants seem in a great measure to do away that inconvenience.

When a tenant leaves his farm he is entitled, by the custom of the country (if there is no covenant entered into to the contrary), to a crop from the land which was fallow, or turnips, during the year preceding the 5th day of April, on which the term expires, as a compensation for the labour and expence attending such fallow, or crop of turnips, which the above is meant judiciously to prevent, in consequence of the great inconvenience arising from the custom.

*Time of Entry.*—In Cleveland and in the northern part of the Vale of York, the tenant enters upon two-thirds of the ploughing at Candlemas, the pasture land at Ladyday, and the house and meadow land at Mayday (all O. S.) But the off-going tenant has the use of so much of the barns and fold yards, as is necessary for threshing out the corn, and consuming the straw of the crop, which crop is off the land that was fallow the preceding year.

Sir Ralph Milbank's tenants at Halnaby have their crop on two-thirds of the arable land, so that the on-coming tenant enters to no arable land, but that which comes in for a fallow.

Some landlords in this part of the Vale insist upon turnips (even when eaten upon the land) being considered as a crop. I understand it had its origin in this part of the country, with the late Earl of Darlington on the other side of the Tees, where it is now almost established as a custom. But they who have, or intend to adopt such a practice, ought to consider, whether the land is not in a better state for a crop of corn, after a crop of turnips eaten upon the land, than after a summer fallow? and if the tenant were to sell the turnips (to be eaten upon the land) at the best price he could get, whether their value would be suf-

ficient to repay him for his expence and labour in making such a fallow? and if it should appear, that the land would produce a better crop of corn after turnips so consumed, than after a summer fallow, and that the turnips in most cases would not be sufficient to repay the tenant, and leave him a reasonable profit, whether such a procedure is equitable?

In the other parts of the North Riding, Ladyday is the time of entry to the whole of the farm, excepting to the land which was either fallow or turnips the preceding year, on which the off-going tenant has his crop; unless the on-coming tenant and he can agree upon a compensation for the fallow, which is very often done.

*Rent of Land.*—The average rent of farms of pretty good soil is from fifteen to twenty-one shillings per acre; in which there may be land rated at from five, to thirty-five shillings per acre; so that the average value of a farm, will vary according to its proportion of good and bad land. Some farms of the latter kind, may be let as low as five shillings per acre, and some let cheaper, at thirty shillings per acre. Near large towns land is let at three or four pounds per acre.

*Size of Farms.*—In so large a district of country, and especially where there is so great a variety, both in the quality and value of the soil, it is to be expected that there will be a great difference in the size of farms; and this is the case, as they vary from £ 10. to £ 1000. per annum.

In the northern part of the Vale of York the rental of farms is usually from £ 100. to £ 300. per annum; of very few perhaps as low as £ 40. and of some as high as £ 600. But further to the southward there is a larger proportion of small farms, some of which are as small as £ 20. per annum, with others as high as £ 200.

On the Howardian hills, the generality of farms are under £ 100. per annum, very few as high as £ 200.

In Ryedale are several large farms, from £ 200. to £ 1000. per annum, or upwards; nevertheless, the greater proportion of it is in farms below £ 100.

In the Marishes they may generally be stated at from £ 50. to £ 150. per annum ; few as high as £ 200.

In both the Eastern and Western Moorlands the farms are small, very few above £ 100. per annum, but generally from £ 5. to £ 40. per annum.

Wherever there are towns or large villages, a greater proportion of small farms is to be met with.

### *APPLICATION OF THE LAND, AND THE GENERAL MANAGEMENT OF IT.*

*Proportion of Grass and Tillage.*—In the Vale of York, one-third in tillage and two-thirds in grass is the common proportion; but where there are extensive open uninclosed fields, and in some places where the soil is light, the proportion of tillage is larger, and may amount to about one half. On the western end of the Howardian hills, and from thence to Thirsk (being chiefly a dairy country) not more than one-fourth is in tillage; on the rest of the Howardian hills, near one-half.

Ryedale, the Marishes, and the northern part of the coast, have about one-third in tillage, the southern part of the coast about one-fourth, and Cleveland about one-half.

In the dales upon the eastern Moors, only about one-fifth is in tillage, and in those upon the western Moors, much less. In Wensley Dale scarce any land is in tillage, except a little of an inferior quality which lies near the Moors. In the dales further north, rather more corn is grown than in Wensley Dale; but the quantity there is very small. The inclosed lands in all those dales are chiefly appropriated to meadow; the lower and better parts of the Moors are mostly stinted pastures, on which the cattle are kept in summer.

*Course of Crops.*—The most common course on strong land throughout the North Riding, is fallow, wheat, and oats; some-

times beans, blendings, (that is, pease and beans mixed) or pease, are sown instead of oats; and not far from Easingwold on the west, fallow, wheat, beans, or blendings, and oats, constitute the common course on strong land.

Some farmers in the northern part of the Vale of York have fallow, wheat, beans, or blendings, or early oats, upon loamy and gravelly soils; but a few, with more judgment, upon those soils, grow turnips, barley, clover, and wheat, and sometimes white pease instead of the clover; also *turnips and barley alternately*, the turnips being always eaten off with sheep, and raised, after the first time, without manure, except sometimes a little lime. Upon such soils in the neighbourhood of Catterick, turnips succeed clover, and after the first crop, also without manure, they being eaten on the land with sheep as well as the clover, except that the first crop of the last is sometimes mown: both these courses are practised with good success, as by these means *the manure is spared for the grass land.*\* Near Bedale the course is sometimes turnips, beans, wheat, and clover, then turnips again.

In Ryedale and the Marishes, and in some parts of the Vale of York, where the land is not dry enough for turnips, rape is sown upon the fallows, which is eaten off with sheep in time to sow them with wheat. On the lighter soils the course is turnips, barley, red clover, and wheat; sometimes instead of red clover, white clover, with trefoil, rib grass and rye grass, or hay-seeds, instead of the latter, are sown, in which state the land continues for one or two years, and then is ploughed up for wheat: succeeded by turnips, and sometimes (though rarely) by a crop of pease or oats. Another course used there is fallow, oats, and wheat, though sometimes clover comes between the two last, particularly when the land is subject to chickweed; also turnips or rape, succeeded by oats, for *four, five, six, or seven years* successively may be met with, particularly in Ryedale.

There are many extensive open common fields of fine turnip

\* This is an extraordinary course, and worthy of being observed: by calculation it appears to be more profitable than any other.

soil in the Vale of York, on which turnips or clover are very rarely cultivated, the course upon many of which is fallow, meslin, or rye, and oats; though upon a few of them turnips are grown by general consent; but unless the farmers are unanimous in their manner of consuming them, a considerable objection attends this mode of cultivation; for the best farmers (desirous of the turnips being eaten upon the land) unite in selling their shares to a butcher or grazier; but there are other farmers who will pull their turnips and carry them home, and consequently their lands receive equal benefit, from the treading and manure of the sheep, with those of their neighbours, without contributing any thing in return; and perhaps more benefit, since the sheep prefer lying upon those bare lands, rather than upon such as are covered with turnips.

The common course in Cleveland, and along the coast, is fallow, wheat, and oats; or instead of the last, beans, or blendings; turnips are but little cultivated upon lands suitable for them. Farmers, who grow turnips to pull off for their cattle, are esteemed bad managers; and I am informed that some have been restricted from growing them, except they were eaten with sheep upon the land.

### *CULTIVATION OF CROPS.*

*Wheat.*—Wheat is generally sown either upon a summer fallow, or a clover stubble, and sometimes on a two or three years lay; but a few practise sowing it after turnips, eaten off before early spring; and it has been sown as late as April, and been found to answer extremely well. I have been informed by a very capital farmer near the Tees, that as good a crop of wheat\* as ever he had was sown the second week in April; and also,

\* The wheat here mentioned, as sown in the spring, was a white wheat usually cultivated in this country, and not what is called spring wheat.

by another in Ryedale, that he sowed the last year about the beginning of April, and it answered well; and the stubble remaining on the field at the time of making this survey, evinced it to have been a most excellent crop. But the common time of sowing is about the 10th of October, or as near that time as can be done. The usual quantity of seed in the northern parts of the Vale, and in Cleveland, is from five to eight pecks per acre, and in other parts from ten to twelve pecks: a few have used Cook's and Perkin's drills for sowing wheat, and have found the experiment followed by good crops; but they are not thought by all to answer.

Wheat is the staple produce of Cleveland. No other district in the Riding, or perhaps in the north of England, produces as much, in proportion to its size, or of as good a quality. Large quantities are shipped from hence and sent to every part of the eastern coast of Great Britain; considerable quantities also go to Thirsk, which are bought up for the manufacturing parts of the country: and about twenty years since, the upper part of Ryedale was chiefly supplied with wheat from hence, many waggon loads going weekly to Kirby Moorside market; but this is now wholly supplied by its own neighbourhood, which after satisfying the home demand, now sends some to Whitby and Malton markets: from the latter place it is conveyed by water to Leeds, Wakefield, and the manufacturing districts, there to be consumed.

After rape, either grown to be eaten off with sheep, or to stand for seed, the land is generally sown with wheat; the crops after which are thought to be fully equal to those after a summer fallow.

*Rye and Meslin.*—As it is generally found that light sandy soils, even after clover or grass, are not capable of producing a profitable crop of wheat, they are usually sown with rye, or meslin; the quantity of rye to that of the wheat, being proportioned according to the judgment of the farmers to suit the soil, the rule being to give the most rye to the lightest soil.

Rye is frequently sown after early fed turnips and summer

falls, when the land is too light for wheat. Less of this is sown than of wheat: one bushel or five pecks of rye, being esteemed a considerable seed.

*Barley*.—Barley is usually sown after turnips, but sometimes after clover, and now and then upon a whole summer and winter fallow; which last practice is generally upon a strong soil.

The time of sowing is from the latter end of March to the first week in May. About ten pecks to the acre are sown throughout the Riding.

Very little barley is grown in Cleveland on the coast, or in Ryedale, and the Marishes.

A few years ago the battledore barley was introduced into Ryedale, since which the cultivation of it has rather increased; it is found to answer better than any other species upon rich land, the straw being stronger, and more tapering than of the other kinds, and the ear standing erect; all which are a means of preventing it from being lodged. The grain is also of superior quality.

There are several plots of those species of barley, called big and bear, cultivated in Ryedale, and in the dales of the eastern Moorlands: the cultivation for them is the same as for barley, than which they are thought to produce a more abundant crop, and to thrive in poorer soils and more exposed situations, but in quality are much inferior to the other kinds.

*Oats*.—Oats are very much grown throughout the whole arable part of the North Riding, and particularly in Ryedale, that district being as famous both for the quantity and quality of oats, as Cleveland is for that of wheat. The turnip land here is generally sown with oats, as is grass land always when ploughed out; and instances are not wanting, where the attention of the landlord or his steward is deficient, of tenants taking many successive crops of oats, all equally great in quantity and good in quality, without any other expence than once ploughing the land, immediately before sowing it, and still without exhausting the ground, such is its extraordinary fertility, and so peculiarly is it adapted to the growth of this grain. Two crops are always taken,

and three frequently. Eight quarters per acre are very commonly produced, but there have been instances of from ten to twelve. Ten quarters have been produced for several years successively.

In the northern part of the Vale of York, they sow of Friesland oats from four to five bushels ; of Tartarian oats from five to six bushels ; of oats the produce of the country, scarce four bushels. In Cleveland they sow about four bushels ; but in the southern part of the Vale, and from thence to the east Moors, and in Ryedale and the Marishes, it is common to sow from six to eight bushels per acre.

*Beans and Pease.*—Few beans, pease, or blendings are cultivated but in the Vale of York, and not generally there. A few persons have sown beans with a drill, and some have been planted by hand ; both which methods have been found to answer better than sowing them broad cast : but the practice of hoeing them has not been much adopted, except in the neighbourhood of Alne and Tollerton, where the farmers are in the practice, and find their advantage in it ; when the land is either light, or it is the third crop after a fallow, it is common to mix the beans with grey pease, or sow pease only. They are generally sown after once ploughing in March, at the rate of four bushels of beans, or blendings, or of  $2\frac{1}{2}$  to 3 bushels of pease per acre.

### HARVESTING.

In the northern part of the Vale of York, and in Cleveland, all the corn is sheared with the sickle. In the southern part of the Vale, and from thence to the Moorlands, it is the usual practice to mow oats and barley with the scythe ; and if many weeds, or much cultivated grass are intermixed, they are usually mown outwards, and left in the swath to dry ; but when unmixed with other vegetables, they are mown inwards ; that is, the mown corn falls against the standing corn ; in which case each mower is followed by a woman, who makes bands and puts the

corn into a sheaf, which is afterwards set up in stooks, or attocks ; the former consisting of 12 sheaves, the latter of 10 sheaves. But in Ryedale oats are frequently " gaited ;" that is, the sheaves are tied near the top, and set up single, when dry they are tied again about the middle, and the band which is taken off the top of the last bound sheaf, is used to bind the middle of the next.

Companies at harvest, whether the work is let by the acre, or done by the day, usually consist of an equal number of men and women.

In Ryedale a singular practice prevails, of threshing out the oats at the close of harvest in the open field, or in the stack-yard ; sometimes upon a cloth, but often upon the bare turf. For a more particular account of which, see Marshall's *Rural Economy of Yorkshire*, Vol. II. p. 21.

Considerable advantages arise from this practice, which it is thought more than counterbalance any disadvantages. The corn being threshed so soon after it is cut, measures much more than it would at a later period, when by drying it has pined and lost considerable bulk ; all waste by vermin is also prevented ; these are general advantages which might be applicable to any country ; but considerations of a local nature appear rather to have caused the practice. The manufacturers of the West Riding consume chiefly oat bread, and are fondest of the meal made from new corn ; the best and earliest oats they can obtain are grown in this district, and sent to them through the medium of cornfactors at Malton, whither almost the whole produce of it is sent ; the commodity which comes first to market, in oats, as in every thing else, bears a considerably advanced price ; this the farmers of Ryedale enjoy almost exclusively for several weeks, until a more general supply reduces the price to the general standard : and they have adopted this mode of taking the advantage of their situation. The extreme badness of the roads from hence to Malton, which in winter are scarcely passable with a carriage, may likewise have had some influence, by rendering them desirous of delivering their produce whilst the roads are in their best state.

The disadvantages are, that without a great attention carefully to stack and secure the straw from weather, it is often in a great measure wasted, though there are a few who are attentive to the securing of it; the straw is also consumed in the fields, which is a much less economical mode than in the fold-yard, or in a beast house; the straw is also liable not to be threshed so clean as when done more leisurely in the barn, and there is a greater waste of corn than when threshed in the usual mode.

All the straw is consumed in one place in the field near to the stack, under the shelter of trees or some high hedge; and after it is finished, the manure is thrown up together into an heap; so that the carriage of the straw from the field home, and of the manure back again to the field is saved.

*Time.*—In the southern part of the Vale of York, in Ryedale, and the Howardian hills (except the west end of them) harvest usually commences about the tenth of August. In the northern part of the Vale, and the west end of the Howardian hills, in Cleveland, and the Marshes, the latter end of the month. On the Coast, and in both the Moorlands, where the situation is favourable, the beginning of October; but in general, the latter end of that month.

*Rape* (for seed) is rarely grown but upon land pared and burnt. It is sown in August, and reaped generally in June. In most parts of the Riding, it is usual to thresh it in the field, as soon as dry, by a number of men, in proportion to the quantity, so as to finish the whole in one day; though that practice is now rather giving way, to the much better and more economical mode of stacking it in the field, and threshing it out with a few men at a convenient time; and it is sometimes as soon as dry, put into a barn, and there threshed.

Great attention and labour are required to preserve the seed from heating and moulding, when collected in such great quantities in so short a space of time; but this inconvenience and risk is entirely done away by stacking or housing it; the seed being safely cured by remaining a few months in the stack or mow.

*Weld* (dyer's weed, *reseda luteola*) is very little grown in the North Riding, except by one farmer near Scarborough, who sows it in the latter end of August upon a summer fallow, and gathers it about the same time the following year; after which the land is ploughed, and sown with rape for eating, and after that, sown with wheat. He this year worked a piece of land for turnips, but was prevented sowing it by the drought, and therefore sowed it with rape, grass seeds, and weld seed, in June; and in about a month turned his lambs into it. In November, when he gave me the account, the weld looked extremely well and vigorous.

It is also sometimes sown among clover, and pulled out when it has got to maturity, before the clover is cut.

*Flax*.—A little flax is grown in Ryedale, and in some few other parts of this Riding; but the quantity cultivated has been considerably on the decline of late years, the parliamentary bounty not appearing in the smallest degree to encourage the cultivation, since the expence and trouble of obtaining it is scarce repaid by the trifling amount of it. It is mostly grown on new ploughed up grass land, after once ploughing, though sometimes upon arable land, made fine by repeated ploughings and harrowings, and attentively freed, immediately after sowing, from all stones and clods, for the plant comes up with a broad top, and so very weak, that it cannot make its way, if there be such resistance.

A clayey loam, when well pulverized, grows line of the best quality, but a sandy loam will grow as much in quantity.

*Turnips*.—In the northern part of the Vale of York, turnips are frequently sown with the Scotch drill \* in ridges, which are ploughed down, and earthed up, and hand-hoed, similar to potatoes; upon a wet or stiffish soil, it is an excellent mode, but it is often practised upon a proper turnip soil, where its advantages do not appear to counterbalance the following disad-

\* This is a hand drill, calculated to sow the seed upon ridges, which is made in Scotland.

vantages : the rows must necessarily be so wide as to admit the plough to go between them, and consequently, they are at a greater distance than is necessary for the turnips to obtain their full size ; they will not therefore become so heavy a crop, as when sowed upon the level ground. The turnips will also be much more exposed to frost, and consequently not stand the winter so well, as if less elevated from the ground ; and what is of still more consequence, so great is the danger of the sheep getting laid on their backs in the furrows during the time of eating them, that it is absolutely necessary for the fold to be constantly attended : however, by this mode of cultivation, turnips may be advantageously grown upon soils, on which they could not otherwise be obtained.

Several farmers in the Vale, and also a few in Ryedale, have got a drill for sowing turnips, made by T. Proud of Darlington, which fixes to the plough beam, consequently, sows and ploughs at the same operation. This drill has some advantages beyond any other I have seen : the seed is deposited in the fresh mould, and upon the manure whilst there is moisture in the soil (the land being manured immediately before ploughing), and if the soil is sandy, there is no need of harrowing : these circumstances have a great tendency towards ensuring a crop.

Cook's drill, and also one made by one Perkins of Stockton, is used for sowing turnips, particularly in the northern part of the Vale ; but much the greatest proportion of turnips in the whole Riding is sown broadcast.

It appears by the foregoing account of the course of crops, that turnips generally succeed a crop of corn ; when that is the case, the land is ploughed in autumn, and made clean and fine by repeated ploughings and harrowings in spring, then manured, at the rate of from 6 to 10 cart loads of dung (each containing about 30 bushels), and sometimes of from  $1\frac{1}{2}$  to three chaldrons\* of lime per acre, and then ploughed and sown.

When turnips succeed clover or grass seeds, it is common to pasture the land with sheep, so late in spring as only to leave

\* A chaldron of lime is ga bushels.

sufficient time for giving the land two or three ploughings, with necessary harrowings immediately before sowing them; but I met with two farmers, one in Ryedale, the other near Scarborough, who have sown turnips upon old pasture land after once ploughing; the latter has practised it for four or five years, and both have found it to answer. I saw both their crops this year, which were sown in that manner, and they were extraordinary good ones. The soil on which those grew in Ryedale was rather a clayey loam, not what is generally thought to be a kindly turnip soil. Those near Scarborough were upon a good turnip soil, but the land had been in grass time immemorial. The mode of management is to plough the land in winter pretty deep; in spring, grass will unavoidably grow on the edges of the flag, or sod, which is kept eaten down with sheep; when the season for sowing draws near, the land is manured with short manure, and extremely well harrowed: in which state it lies until a suitable season offers for sowing.

There is a species of turnip generally sown in Ryedale, called the stone turnip, which is much superior to the other kinds known here; they bulb quicker, the grain is finer, the skin thinner, and the crown of the bulb smoother; and consequently it is less liable to be injured by wet or frost than the other kinds. This does not grow to quite so large a size as some others, but that want is easily made up by leaving them a little thicker upon the ground in hoeing.

The *ruta baga*, or Swedish turnip, has been sown in small quantities by a few individuals, most of whom approve of it, as it is in high perfection a full month later than the other kinds; but a few disapprove of it, as being hard, dry, and thick skinned, and consequently, as they suppose, affording little nutriment.

Many farmers in the North Riding turn their lambs among the young turnips to pick out the weeds, which they do without materially injuring the turnips, as they will not eat the turnip while there is plenty of other food for them; but if the turnips have got large tops, the lambs by running among them, will break and injure them considerably, and impede their growth.

*Potatoes.*—Potatoes are much grown in the dales and margins of the Moorlands, both for feeding cattle and pigs, and for family use ; considerable quantities are also sold into the lower parts of the country for sets. They are grown as a fallow crop in the place of turnips, and are chiefly of the kidney kind, or of a round but flattish form. In the lower part of the country, a few farmers grow ox nobles, champions, or a red sort (I believe the Surinam) for cattle and pigs, but they are not cultivated to any great extent.

Many small farmers grow their potatoes from sets, procured either from the Moorlands, or from Scotland ; and it is remarkable, that the produce from those sets the first year, is clear of curled tops, the second year, about one-third part of the produce becomes curled, and the third year almost all. No prevention is known here, nor did I ever meet with any one able to assign the cause.

The manner of cultivating potatoes is, after the land has been made fine by repeated ploughings and harrowings, to plough it into one bout ridges, after which dung at the rate of from 10 to 15 cart-loads per acre is spread, and what does not fall into the furrows, is put into them by women or children with forks.

The potatoes are cut into sets, each containing at least two eyes or buds ; these are placed at about the distance of 10 inches in the furrows, which requires about 15 bushels per acre : a plough covers the sets with earth by dividing the ridge, and making a fresh one upon the potatoes.\*

As soon as the plants begin to make their appearance above ground, the ridges are harrowed down, and are suffered to remain in that state for a week or two ; as the weeds grow the ridges are earthed up, and in another week or two as much of the earth from the sides of them is ploughed down as can be done without leav-

\* Though the practice of covering them with the plough is very common, yet it is not always done ; the ridges are sometimes hoed down upon the sets by hand, and the ground is left in a rough flat state ; when the potatoes are got above ground, they are earthed up by a plough, and are afterwards managed similar to the other method.

ing the roots too bare; after this the tops of the ridges are carefully hand-hoed, and the earth which was ploughed from the ridges is again ploughed to them: if afterwards weeds should grow, they are again hand-hoed or weeded, after which the earth is drawn up to the top of the ridges; the tops of the potatoes having by this time got to a considerable size, soon overcome all weeds, and consequently require no further attention till the time of taking them up. This is done by passing a plough under the ridge, and thereby laying bare the potatoes,\* which are then gathered by women and children and put into "pies;" these are large heaps of potatoes laid upon the surface of the ground, and carefully covered with straw; a deep trench is dug round close to the heap, the earth out of which is laid upon the straw, and carefully beaten close and tight, which makes it in general impenetrable to frost or wet.

A well managed crop of potatoes by the manuring of the land, the frequent stirrings with the plough and hoes, for the destruction of weeds, and the thick shade of the plants, prepares the soil better for a succeeding crop of corn than any summer fallow or any present mode of cultivation of any other crop: but it is the opinion of a few, though I believe not justly founded, that potatoes greatly exhaust the soil, and therefore ought not to be cultivated to a great extent; which may account for the clause in a lease heretofore recited, restricting the cultivation of potatoes on each farm to an acre and an half.

*Red clover* is very little grown in Cleveland, along the coast, or in the country about Northallerton. In Cleveland, when they do sow it, it is with the second crop of corn after a fallow, and it is allowed to remain for two years, when they plough it out and fallow for wheat; so that some of them object to it, and say, "it impoverishes the land, and fills it with quicks:" not considering that the evil is to be attributed to their own bad cultivation, and not to the clover. A few, however, get into the excellent rotation

\* Instead of the plough, the spade or a wide-pronged fork is sometimes used to dig up the potatoes.

of turnips, barley, clover, and wheat, upon lightish soil, though they are but few indeed.

*Clover* is pretty generally cultivated upon gravelly, loamy, sandy, or lime-stone soils, in every other part of the Riding.

It is too much the practice, in most parts of the North Riding to mow the clover twice; but it is thought if only the first crop was mown, and the latter eaten with sheep, or if suffered to remain the second year, then also pastured with sheep, that the land would be kept in much better condition, than when two or three crops are mown off it.

A large farmer in Ryedale is in the practice of having a few acres of clover to mow for green food, for his draught horses; though he does not cultivate clover for any other purpose: it is given to them in the fold-yard, and he finds that five acres of it will keep during summer as many horses, as fifteen acres of pasture of good land.

Both turnips and red clover are generally found to answer upon all soils, excepting clay.

*Sainfoin* is beginning to be much grown upon the vein of lime-stone, on the south side of the eastern Moorlands, and has been for many years on the lime-stone soil on the north side of the Howardian hills. It is found to be extremely productive, yielding from two to three tons of hay per acre, of a most excellent quality, and to continue in the ground from 14 to 20 years.\* These are the only places in the Riding where it is cultivated.

\* Edward Cleaver, Esq. of Nunnington, has favoured me with the following account of the mode of cultivating sainfoin.

" When we sow sainfoin, we give six bushels of seed to the acre, with a spring crop of corn; the next year, we only just top it, to keep down the weeds which grow amongst it, as it does not flower till the second year: great caution is necessary in the choice of the seed, for it is a fact (not generally known) that sainfoin seed, more than a year old, will not vegetate at all, and therefore it should always be bought where you can be upon a certainty. I have been repeatedly imposed upon by the seedsmen, as it is difficult to distinguish the difference between old and new seed, except by experiment, which comes too late. For this reason, seedsmen ought not to have any seed in their possession in the months of May, June,

Marshall, in his *Rural Economy of Yorkshire*, speaking of sainfoin, says,

" The great advantage of sainfoin, and that which distinguishes it in a striking manner from all other crops, is that of its feeding principally below the field of ordinary vegetation : bringing up to the surface vegetable matter which, without it, would for ever have lain useless to agriculture ; and enriching the cultivator with treasures, which without its assistance, might as well have been situated at the earth's centre. While he is annually reaping a crop of the most nutritious herbage agriculture is at present acquainted with, his soil, so far from being exhausted, is in all probability gathering strength to enable it to throw out in future a succession of arable crops ; besides the additional advantage arising from the quantity of manure which he has been extracting from the bowels of the earth, by twenty or thirty crops of sainfoin."

### *GRASS LAND.*

The principal part of the grass land in the North Riding consists of old pasture and meadow, which are generally very much neglected, and lie in the worst form that can be devised ; in broad lands with very high ridges ; the consequence is, that the upper

" or July, for such seed can answer no other purpose than that of fraud or  
" deception ; since if used, it will be the certain means of destroying the farmer's crop.

" I am the more particular with respect to sainfoin, because it may be sown with success upon land of the most inferior value ; and if well attended to, will produce two tons of hay upon an acre, in a favourable season. At all events, it must not be stocked with any kind of cattle after Christmas, for they will destroy the bud for the next year. Hand manures seem the properst for encouraging the growth, as common dung has generally too many other grass seeds in it, and sainfoin will admit of no rival to come near it."

parts are over-run with moss, and the lower parts with rushes ; and in case of drought the ridges are much burnt, and do not so quickly receive advantage from rain, as when more level. It is also much over-run with thistles and ant-hills ; and the reason I always had given me for its remaining in this state, was, " that the occupiers were restricted from ploughing it out." I have often been surprised to see land in such a neglected and unproductive state, frequently under the eye of both landlord and his agent ; it is very common to see land, which if ploughed up, and under a proper system of husbandry, would be worth 20*s.* per acre, in its present state dear at 7*s.*

*Artificial Grasses.*—The sowing of grass seeds, to continue as meadow or pasture for only two or three years, is too little practised in every part of the Riding ; but it is more so, in that well cultivated part of the country lying betwixt Borough-bridge and Catterick. They are chiefly sown when the land is intended to remain permanently in grass ; and often with the second crop of corn after a fallow, when the land is become foul and exhausted ; nevertheless, there are several farmers who sow their grass seeds with the first crop after a fallow or turnips ; and a few in Ryedale who sow them upon a spring fallow, without corn upon strong land, and find it answer much better than sowing them with corn : indeed there is a very evident superiority in favour of that practice, when compared with that of sowing them with corn. The method is to sow them as soon in spring as the land can be made fit ; the tops of the weeds which may grow amongst them are mown off twice in the course of summer, and land rolled after each mowing ; by autumn, if the season has been tolerably favourable, it is a rich luxuriant pasture.

About Halnaby they sow hay-seeds and red clover on their worst land, and let it lie about 12 years, and manure it whilst young with fold-yard manure.

*Kind and Quantity of Seed.*—The general practice is to sow white clover, trefoil, rib grass, and hay-seeds, with which some mix red clover ; others sow rye grass instead of the hay-seeds.

It is common to sow from 10 to 14 pounds of the small seeds per acre, about half of which is white clover.

One large farmer in Ryedale sows of white clover, 14 lbs. and of trefoil,\* rib grass, and red clover, 7 lbs. and one-quarter of hay-seeds, or in lieu of the hay-seeds, two bushels of rye grass: this is upon a good strong soil. Another very capital farmer sows 20 bushels of well dressed hay-seeds, 10 pounds of white clover, and four pounds of red clover; but where the land is very shallow, two bushels of rye grass instead of the hay-seeds.

Several people will not sow hay-seeds, from a just idea that they are composed of "they don't know what," and therefore prefer rye grass.

The best farmers usually pasture their new laid ground the first two years, and that chiefly with sheep; as they improve grass land more than any other species of stock, both by their treading, and by their dung and urine being more equally dispersed over the land than those of any other.

In the dales of the eastern Moorlands it is the common practice, if the land has not been longer than five or six years in ploughing, not to sow any grass seeds when it is laid down, but to let it acquire such a covering as nature will afford it; the principal part of this consists of the meadow soft grass (*bolcus lanatus*, provincially the duffield grass) a very ordinary grass, either for meadow or pasture. The reason they assign for continuing in that old practice is, that if the land is not ploughed longer than five or six years, it gets well covered in one year, and that white clover does not suit their soil, except where it is sandy upon a shale.

If land, which has been a longer time than the above in ploughing, is wanted to be laid down, they sow rib grass and hay-seeds, the last of which are produced from those natural meadows.

\* Trefoil is found to answer remarkably well for sheep, upon the thin lime-stone soil on the northern margin of Ryedale.

**HAY-MAKING.**

In that branch of rural business, this district (excepting the dales on the western Moorlands) is generally deficient, no regular mode being followed. A great want of attention in general prevails in getting the crop dry, with as little loss of the virtues of the grass as may be. In this particular, the western dales excel every other district of which I have heard. For the following account of the process of hay-making there, I am indebted to my friend William Fothergill, of Carr End.

" Hay-making being of such great importance in agriculture, " perhaps the method practised in the dales of the North Riding, " &c. deserves to be better known ; but may we not first consider " it as an axiom, that *speedy and equal* exsiccation is of primary " consequence to the preservation of the virtues of dried plants, " whether for medical or economical purposes ; and this granted, " then let us see how far the practice in these dales is likely to ob- " tain the desired end.

" Mowing being the same in all places, I shall pass over that " operation, and proceed to the next, which is spreading the " swathes abroad ; this (provided the weather is promising) is " always done as soon after mowing as the vacancies betwixt the " swathes are a little dried ; but always with the hands, not forks, " the miserable invention of indolence : for if the hay-makers are " expert, they will not only do it in less time, but more completely " than with forks. The grass being strewed equally, and laid as " light on the ground as possible, is suffered to remain in that con- " dition till next day about 11 o'clock, when the upper surface of " the grass will be found considerably dried and withered ; the " hay-makers then begin at the side of the field farthest from the " wind, and make the grass into small rows, which, if artfully " performed, will expose an entirely new surface to the influence " of the sun and air ; this operation is performed with great fa- " cility. In the evening of the same day, the rows are made into

" small cocks ; the next morning (as soon as the dew is well  
 " evaporated) the cocks are spread abroad carefully by the hand ;  
 " about noon, when thought necessary, it is again made into  
 " small rows called turnings, which, by varying the surface, ex-  
 " pedites its complete drying ; and if the weather has been per-  
 " fectly fine, from the cutting of the grass, it is found sufficiently  
 " dry to carry to the barn or rick, if the quantity to be put to-  
 " gether is not very great ; but if that is the case, it is sometimes  
 " made into large cocks, where it is suffered to undergo a slight  
 " fermentation, but is never allowed to remain long before it is  
 " carried, as the base of the cock would be injured by the mois-  
 " ture of the ground, as well as the outside by the influence of  
 " the weather.

" In the dales where the above method of hay-making is prac-  
 " tised, there is scarce an acre in tillage. Hay is the grand ob-  
 " ject of the farmer, and he bestows upon it the most sedulous  
 " attention, and has many difficulties to combat : the season  
 " commences late, the surrounding hills occasion frequent and  
 " sudden showers, and the meadows which are all natural,  
 " abound with the *trifolium repens* and *pratense*, *ranunculus*  
 " *bulbosus*, *repens* and *acris*, *spiraea ulmaria*, *sanguisorba offici-*  
 " *nalis*, *plantago lanceolatus*, *geranium sylvaticum* and *pra-*  
 " *tense*, *betonica officinalis*, &c. which being more succulent  
 " than the grasses properly so called, are more difficult to har-  
 " vest than the produce of meadows where the grasses greatly  
 " predominate ; yet with all these difficulties, more hay is reaped  
 " in these dales with the same number of hands, than in any  
 " other place I have seen. The excellence of this method con-  
 " sists in exposing as great a surface as possible to the influence  
 " of the sun and air, and varying that surface as often as neces-  
 " sary by the most simple operations, by which means the whole  
 " is equally and readily dried. This certainly must be prefer-  
 " able to the practice which prevails in many parts of England,  
 " of letting the grass lie several days in swathes. The operation  
 " of the dew by night, and the sun by day, deprives the upper  
 " surface of smell, taste, and every essential of good hay, whilst

" the under part remains green as when cut ; it is then carelessly  
 " thrown abroad with forks, and suffered to remain till dry  
 " enugh to carry. Let reason and experience determine  
 " whether hay reaped in this, or the manner first mentioned, is  
 " likely to be most nutritive and palatable."

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### *MANURES.*

No branch of rural economy is managed with less attention or judgment, than that of making and preserving the manure produced upon the farms. The site of a fold or dunghill is generally chosen upon a hill side, where there may be a good fall for the water to run off ; the eaves of the buildings usually drop into the fold-yard, the water consequently runs through the manure, and carries the strength of it, either into a road or a ditch, where it is entirely lost to the farmer.

A few attentive farmers are in the practice of having a year's manure beforehand ; while others, as soon as the fold-yards are cleared of cattle, have all the manure turned over and laid more compact, which brings on a strong fermentation, and makes it tolerably fit to use for turnips that year.

Lime is generally used, and when the land has not been long in ploughing, is found to answer very well on all soils, but incomparably well upon land fresh pared and burnt. It is seldom laid upon grass land, except in composts ; and is applied to a great extent, and with peculiar advantage on the rich arable lands of Ryedale, and with equal advantage, though less extensively, on the grass lands.

Lime is an utter enemy to ling or bent ; so much so to the former especially, that wherever *even lime-stone unburnt* is thrown down upon ling, in no great length of time the chippings of the stones, and the substance washed off from them by rain, entirely destroy the ling, and produce a fine sweet herbage.

In the western Moorlands, when land which is over-run with ling or bent is intended to be improved, it is the practice to lay on three or four chaldrons of lime per acre; which in one year entirely change the natural produce to that of a fine turf, full of white clover.

*Kelp ashes*—are principally engrossed by the proprietors of the alum works along the sea coast; but are sometimes used for grass land, and found to be a very valuable manure.

*Turf ashes*—are used in the dales of the eastern Moorlands, and along the coast: they make an excellent hand manure for any kind of crop, particularly turnips; but they are not used to the extent they deserve.

*Composts*—are much used in the northern part of the Vale of York; and in some degree in almost every other part of the Riding: they are made of the cleanings of ditches, and sometimes of the shovellings of roads,\* mixed with lime, and all thoroughly incorporated: though it is not a strong manure, yet it is found to be very beneficial to grass land.

Isaac Leatham of Barton, near Malton, has made a compost of earth, and soot, or pigeons' dung; in the proportion of two loads, of thirty bushels each, of the first, to eight bushels of either of the last, spread in layers of six inches (*stratum super stratum*), to the thickness of three or four feet: if the heaps are cut down perpendicularly at the time of carrying them away, the compost will be sufficiently mixed. He has found it answer well for wheat and artificial grasses, if laid on early in the spring.

Bartholomew Rudd of Marsk, makes composts of kelp-ashes, sea-weed, slam from the alum works, and lime, all mixed together with earth, and finds them to answer well. † Slam he has not

\* The shovellings of roads are used only by a few individuals; and, notwithstanding many of the roads in this Riding are repaired with lime-stone, and the shovellings collected in heaps, the farmers are too idle to cart them away.

† Slam is a refuse in the making of alum; but of the component parts of which, I am not sufficiently acquainted with chemistry to be qualified to speak.

long used; but from the experience he has had of it, he thinks it very beneficial.

It does not appear that marle now is, or ever has been made use of as a manure; or is to be found in any part of this Riding.

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### *WATERING OF GRASS LAND.*

Notwithstanding this branch of improvement has been successfully practised in some of the southern counties for many years, yet is the practice unattempted in this Riding, which affords so many situations where considerable quantities of land might be watered at a very small expence; indeed, necessity has driven some individuals, in dry summers, by stopping the course of brooks and rivers, to turn the water over such of their pastures as were capable of receiving the benefit; but I have not met with one instance of a regularly watered meadow.

The lands immediately adjoining all the rapid rivers or streams, are well situated for that improvement; and all the dales in both the Moorlands are singularly so: scarce a field in them that has not a stream of fine spring water running through it; and in the western Moorlands, most of the streams issue out of lime-stone; which, I apprehend, fertilizes the water in a considerable degree.

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### *PARING AND BURNING.*

This mode of breaking up coarse, rough turf, is practised in every part of the North Riding; but more generally on the east side than the west: it is performed with a "paring spade," which a man thrusts forward with his loins; and which cuts the sods about one foot in breadth, and three feet in length: it is gene-

rally thought best to pare as thin as the nature of the turf will allow, so as that it be clean cut up; if the weather is so unsettled after paring, that the sods do not get dry when lying upon the ground, women and children are employed to set them on edge, to expedite their drying; after which they are put into heaps, about the size of a bushel, and burnt.

The opinions of both landlord and tenant respecting this mode of breaking up old grass land, are very various and contradictory; some asserting it to be the most profitable improvement on old, coarse grass ground, while others condemn it, as being the worst piece of husbandry that can be practised.

Paring and burning is generally thought not to answer so well upon strong clay soils, as upon those less tenacious.

William Coopland of Aisenby, near Topcliffe, has communicated to me the following account of an experiment he made in paring and burning.

" From an accurate experiment I made some years since, I am  
 " confident that the best method of breaking up grass land, which  
 " has a tough, coarse turf, is to plough it, for the first time, just  
 " before winter sets in; to cross-plough it in the spring; and,  
 " during the course of summer, give it repeated ploughings and  
 " harrowings, with large, heavy harrows; to lime it well; and in  
 " autumn, sow it with wheat. The above method was practised  
 " on one half of a field; the remainder of which was pared and  
 " burnt: the result was, that the crops upon the pared and  
 " burnt land, after the first two or three years, kept gradually  
 " growing worse; and upon the ploughed ground, the crops for  
 " some years grew better; and afterwards were visibly superior  
 " to the pared and burnt land." \*

\* I saw a field in Ryedale which was ploughed out of grass about so years since; one acre of which was at that time extremely coarse and rushy, and was pared and burnt, the rest not. I was told by the occupier, the crops were uniformly better whilst in ploughing on the pared and burnt part, than on that which was not: the field has now been laid down to grass several years; that part which was pared and burnt, is now quite free from rushes,

Paring and burning is often very injudiciously applied: where the soil is thin, it is always improper; and where the turf is fine, and the soil good, it is needless.

Where tenants are at liberty to manage in their own way, the land is often very improperly cropped after this mode of management: it is frequently sown with rape, which stands to seed; next with wheat; then oats; perhaps for two or three years. It is no wonder, where such management prevails, that paring and burning should be in disrepute with landlords. The ashes certainly make the soil very fruitful for a time; but if it be not kept supported with manures, but constantly cropped, it becomes in a few years so exhausted, as to be little better than a *caput mortuum*.

Where the land is properly managed after paring and burning, it is generally esteemed, both by landlord and tenant, the best and most profitable mode of breaking up old coarse pasture ground; but where the management is opposite, it is much to be disapproved of, especially by the landlord.

The best farmers sow, first, turnips, which are eaten upon the land; next, oats, but sometimes wheat (if the turnips are consumed in time); then oats again; and fallow the following year for turnips.

About the south-east corner of the Howardian hills, if the land be strong, it is pared and burnt as early in spring as the weather will permit; then fallowed and limed for turnips: this is found to be the best mode of management of that soil.

After paring and burning, upon all soils (except where too wet), turnips or rape, for catage, ought to be sown either the first or second year; when sown the first, the land should be not less than twice ploughed, and well harrowed and broke, to prevent the roots of the grass, and other vegetables, from growing again, which they generally do when only once ploughed, and occasion the land to be extremely full of sods for two or three years after: repeated ploughings and harrowings also form a better matrix in which the seed may vegetate.

and is covered with a good, sweet herbage; whilst the remainder of the field is very full of rushes, and the herbage very coarse.

When turnips are sown with once ploughing, there is generally not a sufficient mould for the protection of the seed, and in which it can vegetate, whereby the crop is very often partial and irregular.

Lime would also be found extremely beneficial in improving the turnips, and the succeeding crops, which ought to be in a similar course to the following:

First, turnips; second, oats; third, pease or beans, which should be hoed; or, instead of them, a green crop, either of clover, or rape and rye mixed, to be eaten off with sheep, or tares which might be mown, either for green fodder, or to make into hay; fourth, wheat; fifth, turnips.

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### DRAINING.

This species of improvement is not yet so generally adopted as it deserves, but is rather increasing; the most has been executed in the northern part of the Vale of York, and in Ryedale; and some little in almost every other part of the Riding; and without doubt would become general, if, where the land is let at will, the landlords would unite with the tenants in the expence; or agree, that in case the tenant should leave the farm in a given number of years (supposed to be within a sufficient term for him to be repaid), that he should be allowed for the expence in proportion to the time expired. But under-draining is expensive; and where the tenant enjoys his farm at the will of the landlord, it is a discouragement to make this, as well as other expensive improvements.

The mode of doing it is, to cut the drains along the verge of the higher side of the springy ground, of a sufficient depth to catch the spring; the water from which is conveyed by other drains into some open ditch; and it is sometimes necessary to make some cross drains, to take the water away more effectually;

and where cobbles (pebble stones) only are used; and which, on account of their inclination to be globular, and consequently to leave greater interstices than any other materials that can be used, are the best calculated of all others for the purpose, the drains are filled with them to the depth of about half a yard, or more, if they are plentiful: upon the cobbles, a covering of straw is laid; and over it the turf, if in a grass field: these, together, effectually prevent the loose earth from falling among the stones, and injuring the course for the water. If no turf is produced in making the drains, it must either be procured from a distance, or a greater quantity of straw made use of: and lastly, the remaining part of the cut is made level with the earth that came out of it. But where stones, not possessing the globular shape of the above, or common quarry stones, are used to form the drain, it is usual to make a small conduit or tunnel along the bottom of the drain to convey the water; then to fill to a certain height with loose broken stones, and finish off as before.

Wood is not often applied to the purpose of draining, because, though in many places it is plentiful, stone is in general more so; and though the wood will perform its office equally well at first, drains made with it are more liable to decay; and if taken up to repair, cannot be renewed with the old materials; a disadvantage not found where stone is used.

In a few situations, where neither of the above materials can be easily procured, hollow drains are made in the following manner: suppose a drain be cut  $1\frac{1}{2}$  feet wide at top, and three feet deep; at the depth of two feet, it is contracted to one foot; at the bottom of this another cut is made, about nine inches wide, which tapers to the bottom, and consequently leaves a shoulder on each side, of the breadth of  $1\frac{1}{2}$  inches, and at the depth of two feet from the surface; the top sod is put in with the grass side downwards, and being half a foot wider than the vacancy intended to receive it, is necessarily rammed in very hard, and becomes capable of supporting the earth, with which the remainder of the drain is filled.

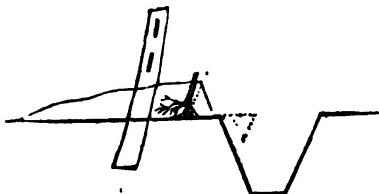
This drain, where the soil is of a tenacious quality, and the

field remains in grass, will last a great number of years; but there is danger when in ploughing, of the horses feet breaking into the drain, and stopping the passage for the water.

A considerable degree of attention is paid, in most parts of the North Riding, to gripping (that is, open surface-draining) the ploughed land, in order to carry off the surface water; but a general neglect of the grass land prevails in this respect; the furrows of which are often filled with water, which is suffered to remain till imbibed by the earth, or evaporated by the sun and winds.

### FENCES.

White thorn (provincially quick-wood), constitutes the most common fence throughout the Riding; and is planted for fences when about three years old.



Where a ditch is necessary, it is common to lay one row of sods upon that edge of the bank on which the wood is intended to be planted, with the grass side of the sod to the ditch; the plants, after being pruned to the length of about four or five inches, are put upon the back of the sod, with the end about one inch above ground; then more of the best earth is taken out of the ditch, to put to the other side of the plants: they are securely fenced from cattle with posts and rails; and for six or seven years after are, or ought to be, kept clean from weeds; but a manifest want of care in that respect is too often to be perceived.

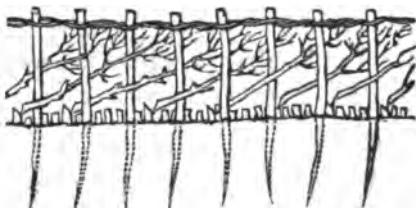
The after-management of those hedges admits of some variety; and it is very rare in this Riding to see any under one that is good. The usual mode is extremely bad, and certain in a short time to ruin the fence.

When the hedge has acquired a pretty considerable degree of strength, perhaps at about 10 years old, it is headed down to about two or three feet in height, by which the succeeding shoots rise from the top of the stems; in the course of a very few years the lower part becomes naked and bare, and many of the stems die, and consequently the hedge full of openings; when it has again grown large, those shoots which rise from the top of the old stems are again cut, leaving only a few to be laid down even with the top of the fence; this is accomplished by making a nick on one side, which gives them sufficient liberty to lie in an horizontal position, being bent down on the contrary side to that on which they are nicked.



This mode of management makes a fence very unsightly, and never is sufficient to turn sheep without the addition of dead wood.

Another mode of management, which is much superior to the above, though not without its inconveniences, is adopted by several farmers; and that is, *laying* the hedge.



H 2

This is chiefly performed upon hedges rather young ; and is done by cutting off the stems close to the ground, leaving only one in a foot, which is dressed all the way up to near the top, and is nicked and interwoven in a reclining position, with upright stakes driven into the ground, at about the distance of half a yard ; the top of the fence is then " bound " with hazles, or other small wood, which is twisted together, and incloses each stake ; this stiffens the stakes, and keeps layers in their places : from the bottom of the fence proceeds innumerable shoots, which form, in about two years time, a very thick young hedge ; but the inconvenience is, that the layers in a few years die, particularly if they be strong ones, when the dropping from them, and from the dead bindings, injure the tender wood beneath.

A very few, when the fence wants renewing, and they can protect it from cattle for a few years, head the whole down to the ground ; in consequence of which, it puts forth a prodigious number of shoots, and is the best mode of renewing a hedge.

In the low lands adjoining the river Derwent in the Marshes, about Ayton and Wykeham, where drains are wanted as well as fences, two ditches, each eight feet wide, and sixteen feet asunder, are made ; the soil which comes out of the ditches is thrown on the intermediate space, which is planted with bitter willow (*salix pentandra*) on each side, and alder and birch in the middle. This is at first a good fence ; but it takes up much land, and is only to be practised where that is not very valuable : the space between the ditches is rendered very useful and profitable to the farmers, by producing wood for rails, gate and stack bar slices, hedge stakes, and several other purposes.

In the dales of both the Moorlands, where stone is plentiful, stone walls without mortar are the prevailing fence ; they are made about 5 feet high, generally coped either with large stones laid horizontally, or less stones set upon an edge.

*LIVE STOCK.*

The breed of cattle throughout the North Riding, is the short horned, except towards its western extremity, where some small long horned cattle are to be met with; and also a mixed breed between the two;—the natural consequence of bordering on the West Riding and Westmoreland, the countries of the long horned breed.

The short horned cattle of the northern part of the Vale of York, and of Cleveland (where also considerable numbers are bred), are known by the name of the Tees-water breed; and in the south of England, by that of the Holderness cattle, from the district of that name in the East Riding, where this breed was either originally established, or first so improved as to bring it into notice, and where, with the district now under survey, the best of the breed are still to be met with. This district is supposed to produce the largest cattle in the kingdom; and several proprietors of stocks have of late years, at considerable expence, attentively improved them, encouraged thereto by the great prices given for cattle of this breed, in consequence of its increasing reputation. But it is a matter of regret, that a great want of attention among the generality of farmers in improving their stocks, should still prevail; which can proceed only from a narrow and ill-judged parsimony; as spirited improvers are scattered over the whole of that part of the Vale, north of Bedale, through whom, at little additional expence, they might obtain the necessary improvement.

The cattle of the improved breed are very large and handsome; their colour, light red, or black blotches distinctly marked on a white ground; their backs level; throat clean; neck fine; carcass full and round; quarters long; hips and rumps even and wide; they stand rather high on their legs, handle very kindly, are light in the bone in proportion to their size, and have a very fine coat, and thin hide.

The best farmers breed and completely fatten their cattle. Their steers (young oxen) when three parts fat, in the autumn,

after they are three years old, sell from 13 to 18 pound each ; and in the spring, when completely fat, being then 4 years old, from 18 to 24 pound each.

Very few oxen, in the northern part of the Vale, and Cleveland, are used for the purposes of the draught.

Henry Peirse, Esq. of Bedale, has a breed of very large hornless cattle; some of the cows are very handsome, clean, and well made; he has a pair of oxen rising 4 years old feeding, which, without doubt, now weigh upwards of 90 stones each (14 lbs. to the stone).

In the southern part of the Vale of York, breeding of cattle is not so much attended to as in the northern part; the object of cattle there being for the dairy, for the making of butter and old milk cheese; and consequently the milk alone is attended to. The calves there are all fed for the butcher, except what are sufficient to keep up the number of cows; and therefore very few farmers pay any attention to the improvement of their stock; nor indeed under such a system is it necessary for them to do it: there is scarce one breeder in ten who would send a cow five miles to a good bull, and pay five shillings for the use of him, if he could obtain the calf by any ordinary bull nearer home, at the common price of one shilling for each cow.

This breed is generally coarse about the head, light in the fore quarter, coarse about the hips and rump, but rather shorter legged than in the northern part of the Vale.

The cattle of the western Moorlands are small: in the lower parts of the dales, they are generally of the short horned kind; but in the higher situations, near the Moors, and on the borders of the West Riding and Westmoreland, the long horned breed prevails; and in consequence of there being two breeds in the neighbourhood, it is natural that there should be a considerable number of a mongrel, or mixed breed, between the two; this mixture (in the opinion of many there) produces the best breed. They are rather heavier than the true long horned, and graze more kindly than the short horned; and weigh, when fat, from 30 to 40 stones.

No oxen are here used for labour.

In the eastern Moorlands and the coast, a great number of very good cattle are bred ; they are not quite so large as those near the Tees, but are clean and fine in the bone, and very free feeders. Great numbers of the oxen are worked until six or seven years old, and then are sold, chiefly to the graziers of the south of Yorkshire and of Lincolnshire, by whom they are preferred to every other breed.

The good qualities of the cattle stock of this district seem to be more owing to the soil, climate, or accident, or all of them united, than to the care and attention of the breeders, whose spirit for improvements is very feeble indeed.

In Ryedale, with the Marishes and the Howardian hills, many cattle are bred, and a considerable degree of attention is paid to their improvement by several spirited individuals ; and here, next after the banks of the Tees, the best of the short horned cattle bred in this Riding are to be met with ; the breed formerly was crossed with bulls from Holderness, but since the Tees-water bulls have taken the lead, they have been chiefly resorted to for improvement.

The following are the dimensions and weight of a cow 5 years old, bred by John Dowker of Salton, which was killed last Spring :

	Ft. In.
Height at shoulder	4 7
Length from horn to tail	7 6
Girth behind the shoulders	7 10
Round the hind ribs	9 7
Width across the hips	2 4

Her four quarters weighed 90 stones, and she was sold for £ 28. 10s.

The breed of Ryedale is generally very large, with great bone, and does not feed quite so quick as the Tees-water ; to remedy which, the Sussex breed \* has been used for a cross by two

\* The Sussex breed is fine in the head and bone, with an eye remarkably full and lively; deep in the breast; wide in the hips; clean in the thigh; and shews a remarkable agility and quickness; and consequently is an

farmers of the Dale: the effect of it has been to produce more kindly feeders, to reduce the size a little, to render the bone much finer, and to improve the whole form.

*Sheep.*—The sheep of the old stock of the northern part of the Vale of York, and of Cleveland, are very large, coarse boned, slow feeders, and the wool dry and harsh; they feed to from 30 to 40 pounds per quarter, at 3 years old; and a few have been fed above that weight, and produce 10 or 11 lbs. of wool each; but of late years the stocks of very many of the breeders have undergone a great change, and been much improved by the use of rams of the Dishley breed, which have considerably reduced the *bone* and *offal*, improved the wool in quality, and the mutton also, which is much finer grained, and better flavoured than of the old breed, and fatter at 2 years old, than the other at 3. The wethers are generally sold at 2 years old, before they are shorn, at from 42s. to 50s. each; and weigh from 24 to 30 lbs. per quarter; the fleece of these sheep weighs from 6 to 8 lbs.

This improvement in the breed of sheep extends betwixt the Swale and the western Moorlands, as far south as the West Riding; but it is not yet so general in the southern part of the Vale as the northern.

In that part of the Vale of York, east of the river Swale, scarce any attention is paid to the improvement of sheep, except by a very few individuals; indeed, not many sheep are bred: three or four different breeds may frequently be found in one farmer's stock; and one would think (from their appearance) that considerable pains had been taken to select the refuse of the several countries from which they have been brought:—as a proof of the want of a proper spirit for improvement, the common purchase price of a ram to ride a stock of ewes, is from 18s. to about 30s. the latter being esteemed a very great price.

In Cleveland, Sir Thomas Dundas has crossed, for two or three years past, his ewes of the Lincolnshire breed with rams of the

excellent cross for producing working cattle, and generally milks better than the long horned breed.

Dishley blood; his stock now is very valuable, both for wool and carcass. Except at Upleatham, the Dishley blood has made but little way in Cleveland, the farmers being closely attached to their old breed; but some, by putting a Tees-water-ram to ewes of the eastern Moorlands, have produced a stock better adapted to poor land than the Tees-water breed; they however fall far short in the valuable properties of the improved breed in the Vale of York.

The sheep of Ryedale, the Marishes, and the Howardian hills, possess much of the Lincolnshire blood; the original breed of the Dale having been improved by that cross; they are very slow feeders, are light forward, have the loin and chine narrow, the wool strong and heavy, and pelts thick; but through the great spirit and judgment of several of the breeders, their stocks have been amazingly improved by the introduction of the Dishley blood into them, to which some are now nearer allied than the owners of others wish theirs to be, from an opinion that the cross of the Dishley breed with sheep of a larger kind are more valuable than the pure breed, which they think too small: this improved breed is about the same size, but produces rather more wool than that of the Vale of York.

A few sheep are bred on the higher inclosed lands of the Dales in the western Moorlands, which are mostly white faced, with horns, and of a very different appearance from any others in this county; the wool dry, harsh, and thick set; they are very slow feeders, and will weigh, when three years old, about 18 or 20 lbs. per quarter, and produce about five or six pounds of wool.

The sheep which are bred upon the moors of the western Moorlands are horned, have grey faces and legs, and many of them a black spot on the back of the neck, and wool rather coarse and open; it is usual to sell the wethers, when 4 years old, at about 12 s. each; but the principal part of the sheep on the western Moors are Short Scots (so called in opposition to a larger breed of Scotch sheep, which are called Long Scots), which are bought about Midsummer, and are usually sold off again in the wane of that summer, or the summer following.

The breed of sheep on the eastern Moorlands have horns, and black or mottled faces and legs, are small and very hardy, suitable to their pasture and the climate they inhabit; their wool is open, loose, and coarser than of those bred on the western Moorlands; they are rather less in size, and sell, when 4 years old, at about 9 or 10 shillings each.

The fleeces of the sheep of both the Moorlands average from 3 to 4 lbs. each.

*Horses.*—Yorkshire has long been famed for its breed of horses, and particularly this Riding, in almost every part of which considerable numbers are still bred; the prevailing species of which are those adapted to the coach and the saddle.

In the northern part of the Vale of York, the breed has got too light in bone for the use of the farmers, by the introduction of too much of the racing blood; but the most valuable horses for the saddle, and some coach horses, are there bred.

In Cleveland, the horses are fuller of bone than those last described; they are clean, well made, very strong and active, and are extremely well adapted to the coach and the plough.

In the southern part of the Vale of York, the Howardian hills, Ryedale, and the Marishes, a greater mixture prevails, both of the black and the racing blood, than in Cleveland; nevertheless, those districts produce a very considerable number of both coach and saddle horses; but want of attention or judgment, or both, in the owners of mares, in not suiting them with proper stallions, evidently injures the breed.

The dales of the eastern Moorlands, and the coast, rear many horses, which are rather of a smaller breed than those before described, but are a hardy useful race, though generally too low for the coach.

Horses constitute a considerable part of the stock of the high parts of the western Moorlands; the farmers there generally keep a few Scotch galloways, which they put to stallions of the country, and produce an hardy and very strong race in proportion to their size, which are chiefly sold into the manufacturing part of the West Riding and Lancashire, to be employed in ordinary purposes.

Some large farmers in the Vale of York, and in Ryedale, do not breed many horses, but buy colts when 2 or 3 years old, which they keep until 4, using them for the purposes of the farm; they are then sold, and generally to the London dealers. By this annual practice their stock is kept up; and they get a considerable profit yearly by the horses, which perform the business of the farm.

The farmers who breed horses, generally breed from those mares which are employed in the business of the farm; these are often worked until the very time of foaling, after which they have usually two or three weeks rest before they are again taken to work; the foal, during the time the dam is working (especially whilst it is young), is shut up in a stable; and it is the practice of some, before she is suffered to go to the foal, after returning from work, to bathe her udder with cold water, and to draw most of the milk from it, to prevent the milk which may have been heated by labour from having any hurtful effect upon the foal; some continue this practice as long as the foal sucks; others, after the foal has got sufficient strength to travel along with the mare, take it along with her into the fields, and frequently suffer it to suck, from an opinion that by the milk being frequently drawn, less danger arises of its being heated, or of possessing any quality prejudicial to the foal.

The general time of foaling is about May-day (from which day the age of all horses is reckoned), and that of weaning about Michaelmas, when the foals are put into good after-grass, or the best pasture the farmer possesses: they remain there as long as the weather permits (if there is sufficient food), and on the approach of winter have a little good hay given them, where there is a stable or hovel that they can go into at their pleasure. The colts are usually gelded in the spring following, and in summer are allowed only an inferior pasture; the next winter, they make their living in the fields, or in the straw-yard, except they are intended to work in the spring, which is frequently expected of those of a strong kind; such are rather better kept, as the time

of labour draws nigh, and are only put to light and easy work, and generally work only half a day at once.

Some keep their colts a year longer before the operation is performed, and find that such become the stronger and handsomer horses: the foal always receives a great check by being weaned, which it does not well recover before it gets the fresh pasture of the following summer. The foals which are gelded at one year old, receive a second check at the very time they should begin to recover the first; whereas, at two years old, they appear to be in the best condition for the operation, and recover at least as well as at one year old, and are much improved by the keeping of the preceding year.

Many of the breeders sell their colts in autumn, when rising 3 years old; but others keep them a year, and some two years longer, working them until two or three months before the time of selling them.

*Making up for Sale.*—The method practised by the farmers in making up their two year old colts for sale in autumn, is to give them some good grass, and only take them up about a week before the time of sale, in order to reduce their carcass, improve their coats, and teach them to lead; they are usually sold with their full tails to dealers, who afterward make them up more according to art. The first business is to draw their corner teeth, in order to make three and four year old horses have the mouths of those of five; they also undergo the operations of docking and nicking; and after having been kept for two or three months on mashes made of bran, ground oats, or boiled corn, they are sold to the London dealers, who, it is said, sell those 3 or 4 year old horses as if they were 5 years old: they are then taken into immediate work, either for the coach or saddle, and in a few months are completely destroyed by this premature and too severe labour.

This drawing the teeth is not a fraud practised upon the London dealers; they know the deception, and insist upon its being done by the country dealers. It is requisite to be done some

months before the London dealers finally sell them for use, or the tooth which denotes a horse to be five years old, would not be grown ; consequently the deception could not have taken place.

*Exportation of Horses.*—The horses which are sold for the London market, if for the carriage, are chiefly bay geldings, with but little white on their legs and faces ; those which have much white, with chesnut, roan, and other unusually coloured horses, and mares, generally do not bear an equal price in the London market, but with other slight and undersized horses are more sought after by foreigners, and eagerly purchased by them for exportation ; or are exported by people of this country, who carry them to the foreign markets, and ultimately obtain a price for them, equal to that obtained for those sold for home use ; by these means the exportation, contrary to an usually received but ill founded opinion, has a strong tendency to reduce the price of those horses which are calculated for the home market ; and since as many fillies as colts are naturally bred, and one-third of the colts at least will either have too much white for the home market, or be of some other colour than that which is fashionable at the time, if the breeder had not a market for those, which appear to be two-thirds at least of all he unavoidably breeds, he would be compelled to put such a price upon the one-third which happened to suit the home market, or variable taste of the moment, as would pay for the other two-thirds ; which last would either be unsaleable, or fetch very inadequate prices. The consequence naturally flowing from this would be, that the price of horses used at home would be far greater than at present, when a foreign demand procures to the breeder nearly as good a price for the horses, that would otherwise be useless and unsaleable, as for those which are valued at home.

*Pigs.*—The breed of pigs which prevails throughout the whole of the North Riding, is of the long-eared kind, having long legs, high narrow backs, and low shoulders ; they are very slow feeders, and require good meat to keep them even in tolerable condition ; a few individuals keep the Chinese kind, and also a good breed of the Berkshire sort, both which are much more

kindly feeders than the first. In Ryedale the Chinese breed are gaining ground, through the liberality of a gentlewoman now resident in that neighbourhood, who possessed of two or three excellent sows, has distributed several of their produce, both male and female, in the neighbourhood. They are larger than most of the Chinese breed I have seen ; the old sow, as she runs about will weigh 16 or 17 stones.

J. Dowker of Salton has also an excellent breed of pigs, between the Chinese and Berkshire; they are deep and thick bodied, very handsome, and when only moderately fat, will weigh 20 stones.

*Rabbits.*—A few rabbit warrens are met with on the detached moors, and also on the skirts of the higher moors; but they are not to that extent as to make them an object of attention in this survey.

The species are the common grey, except the stock on a warren in Wensley Dale of about 150 or 200 acres, which consists of silver greys, and is the only warren I have heard of entirely stocked with this species; they are said to have been brought some years since from a warren in Lincolnshire, whither they had been originally brought from Ireland : the skins of this species are worth double those of the greys. They are not used for felts as the last, but dressed as furs, and ultimately exported in that state to China, there to be worn by the principal people.

*Bees.*—There are many considerable stocks of bees kept in the dales, particularly in those of the eastern Moorlands; the honey produced by which, being collected chiefly from ling, is strong and high coloured.

In the lower parts of the Riding are some few stocks, but I apprehend not one-tenth part of what might be kept. When we consider the present exorbitant price of sugar, that all the honey which is not gathered is lost, and that the expence attending the management of bees is so trivial, it appears very desireable that stocks should be kept sufficient to collect the whole.

### **FARM HOUSES AND OFFICES.**

Throughout the whole of the North Riding, except Cleveland, a large proportion of the farm houses and offices is very disadvantageously situated, as they are generally in villages; which occasions the lands to be much intermixed, and throws some portion of the ground a long way from home. Many of them are also old and inconveniently constructed, and a general want of convenience prevails for housing of cattle.\*

Many old farm houses conveniently situated upon the farms, have very inconvenient offices; but those which have been built of late years, are generally better circumstanced, both in point of situation, and convenient arrangement of their offices.

In the western dales, the cattle being housed in winter, hay barns, with a cow-house at one end, and frequently at both, are placed in every three or four fields; by this means, the hay and the manure are not carried any great distance; an important circumstance in these hilly countries, and particularly so during the time of making hay, in a country where the weather is very uncertain, attended with sudden, frequent, and violent showers.

A farm of fifty or sixty acres will have five or six of these buildings.

### **CARRIAGES AND IMPLEMENTS OF HUSBANDRY.**

*Carriages.*—In the northern part of the Vale of York, few waggons are used; the reason assigned for which is, that the

\* Cattle are found to consume much less food, and to be kept in much better condition when housed, than when foddered either loose in a fold-yard, or in the fields.

country is hilly; many use two, and others three-horse carts, with three-inch wheels ; but most of the farmers have carts which are unusually long in the body, and with broad wheels, for the sole purpose of carrying their hay and corn, and working upon the farm.

In the southern part of the Vale, the Howardian hills, Ryedale, and the Marishes, waggons are pretty generally used, and large heavy carts, drawn by two or three horses ; though many farmers keep a light one-horse cart, for purposes where a large one is not necessary.

In the dales of the western Moorlands, scarce any waggons are used, but generally small narrow wheeled carts, drawn by one horse.

In the dales of the eastern Moorlands, very few carts are met with; generally small waggons with low wheels, which do not contain more than from 12 to 20 bushels; to these they yoke two pair of oxen, with one or two horses before them. But on the verge of these moors, and on the coast, more carts are kept, and both the carts and waggons are larger than in the dales.

It is remarkable, that in these dales *waggons* are generally used because the country is hilly, but in the dales of the western Moorlands, and the northern part of the Vale of York, carts are used for the same reason ; so little has reason and experiment yet determined.

In Cleveland, and that side of the Vale of York contiguous to it, very few waggons are used, generally three-horse carts, which have the horses yoked to them after a singular mode, by putting one horse in the shafts, and two abreast before him : in every other part of the Riding, the horses are yoked one before another. I apprehend it admits not of a doubt that three horses yoked in the former manner, will draw a greater weight than when single.

Throughout the whole of the North Riding, wheels more than three inches broad are very rare ; a few carriages are seen in the best cultivated parts having six-inch wheels, intended chiefly to be used upon the farm, which are found a great convenience.

Thrashing machines are yet in the hands of very few: they were first made by Rastrick of Morpeth; the price from £ 80. to £ 100. exclusive of a roof to cover the wheel and the horses whilst at work. This machine is wrought by two horses, and thrashes and dresses from 12 to 15 quarters of wheat in 12 hours. A person who has one of them pays this year to his labourers for thrashing and dressing his oats by the mill, 6d. per quarter, and expects to pay for his wheat 1s. or 1s. 2d. per quarter, exclusive of finding the horses for working the machine.

A great advantage arising from this machine, is that of being able to get the corn to market whenever there is an advance.

*Ploughs*.—The plough generally used throughout the North Riding, is called the Dutch plough, a short and light swing plough, and perhaps upon the best construction of any of that kind: in the hands of a good workman it performs its business well, and requires not a great force to work it. There are a few also of Rotherham ploughs in the southern part of the Riding.

Ploughing is generally performed by two horses abreast, driven by whip strings held in the hands of the ploughman, except in the northern part of the Vale of York, and in Cleveland, where it is common to plough with three horses, two abreast, and one before.

Turn-wrist ploughs are not entirely unknown; two or three may be met with in the Riding, kept for the purpose of ploughing steep hill sides, to which they are peculiarly adapted.

A few gripping ploughs are also kept, for gripping the furrows of grass land, which is found to be an advantageous practice; but they cut out a sod of about seven or eight inches in breadth, which is more than necessary to carry off the water; and the horses in working poach the furrows very much.

The breast gripping spade, which is in the hands of a few, is much to be preferred to the last instrument; it cuts a grip of about three inches in width, prevents the inconvenience of poaching the ground by treading, and cuts the grip much straighter and neater than can be done with a plough.

The spade is made of a piece of thin iron, with a socket to admit the end of a shaft three inches broad; each side of the iron

is turned up, which cuts the side of the grip, while the middle or bottom part of the iron cuts the bottom of the grip, and the shaft supports the sod cut out; and a boy with a light spade throws it off, which expedites the business very much.

*Drills*.—are not general, though several are used in the northern part of the Vale of York, and a few are in the hands of enterprizing farmers in other parts of the Riding; they are chiefly applied to the sowing of turnips and beans; some think they do not answer for other grain. The kinds are the Scotch drill, for sowing turnips, Cook's drill, and Perkin's drill for sowing any grain, and Proud's drill for sowing turnips

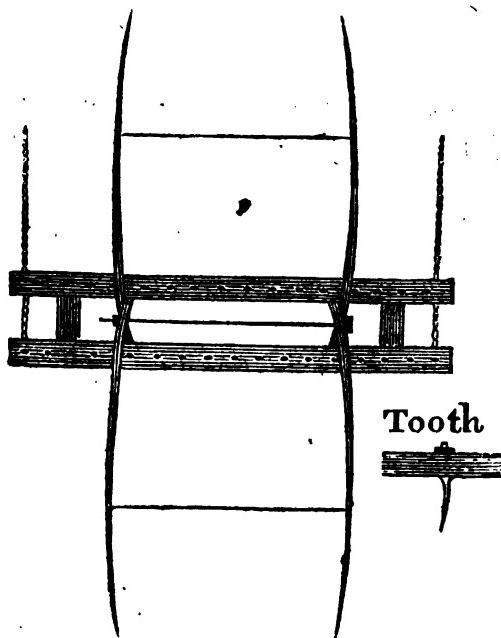
*Harrows*.—The common two-horse harrow is used to cover the seed, but in many places (though not generally) heavier harrows with longer teeth, drawn by four horses, or a pair of oxen and two horses, are used to clean the land from quicks, each of them consists of four bars (here called bulls) in each harrow, with six teeth in each bull.

*Quicking Drag*.—In the northern part of the Vale of York, a drag on an excellent construction, is used for clearing the land from quicks.

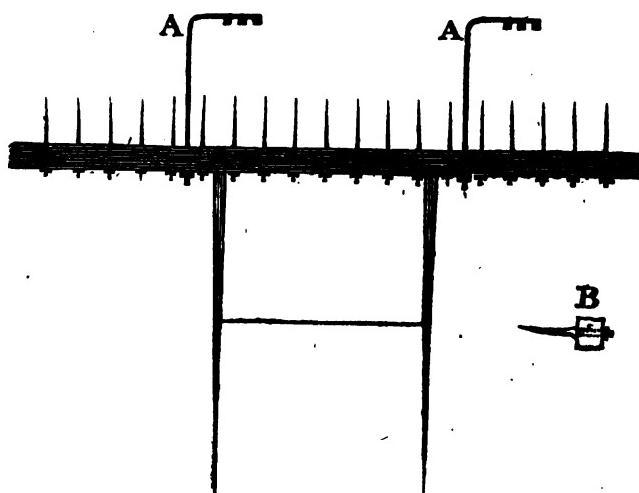
It consists of two bulls, each six feet long and four inches square, with 16 teeth, 14 inches long, in each. At the upper end is a nut and screw, to make it more secure in the bull, to admit of its being more easily taken out to sharpen, or repair; the bulls are braced together by two cross pieces of the same substance, eight inches long between the bulls: from each bull rise a pair of handles similar to those of a plough, the one reclining backward, the other projecting forward; where they cross each other, an iron bar with a flat head at one end, and a nut and screw at the other, goes through all four of them, and strengthens and braces them together; these handles which point forward, rest upon the frame of a roller, to which the drag is hung by a chain fastened to each end of the hind bull, passing under the foremost; the fore handles or stilts rest upon the frame of the roller, by which means the drag may be raised entirely clear from the surface of the ground, and as the teeth have but a very small curve, the couch very readily falls off, and is left in rows ready to be raked

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QUICKING DRAG.



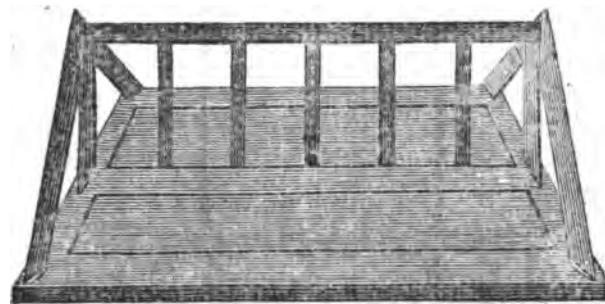
HORSE STUBBLE RAKE.



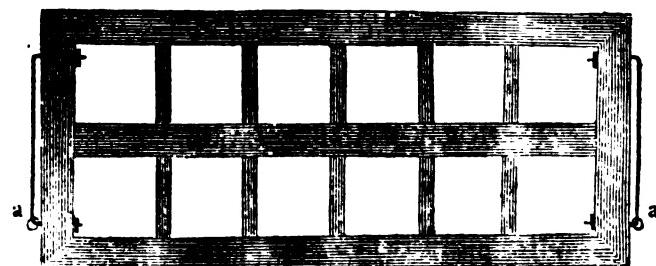
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HAY SLEDGE.

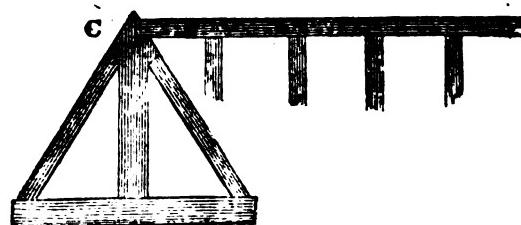
A



B



C



up ; the roller which immediately precedes the drag, breaks the clods, and assists the operation of the latter.

*A Stubble Rake*, drawn by a horse, is used in the northern part of the Vale of York, for the purpose of raking the stubbles of mown corn ; with this implement 12 acres can be raked in one day, by one man and a horse.

*A A*, are two irons fastened into the bull by a nut and screw, and projecting from it two feet, and then turning in a perpendicular direction one foot, the perpendicular part having a few notches, to one of which in each iron, the traces of the horse are fixed ; and the requisite degree of hold which the rake is wished to have, is obtained by hanging the traces to a higher or lower notch.

*B*, a tooth and section of the bull, which are placed in the direction taken by them when working.

A man takes hold of the handles to steady it, and empty it when full.

*Hay Sledge*. In several parts of the North Riding, a hay sledge is used for readily collecting the hay together, when raked into rows, and intended to be stacked in the field ; with this implement and two horses, the hay may be got together in much less time than with a carriage.

*A*, is a view of the whole of the sledge.

*B*, the frame of the bottom, which is boarded on the top side, as shewn at *A*.

*C*, is one end, with the top rail springing from it.

*a a*, Are two pieces of iron fixed on the frame with nuts and screws ; on each is a ring to which the horses are hung, one horse going on each side of the row, whilst the sledge has got sufficiently loaded, when one horse crosses the row, and the load is taken to the stack : when arrived, the horses are turned about, and the rings run to the other end of the irons ; the sledge is then drawn back (leaving its load), and proceeds to collect another.

*LABOUR.*

In the northern part of the Vale of York, and in Cleveland, where the practice of letting work by the piece by no means prevails, wages are in winter from 1*s.* to 1*s.* 2*d.*, and in summer from 1*s.* 6*d.* to 2*s.* per day, without meat. The time of labour is from daylight to dusk in winter, and from 6 to 6 in summer.

In the southern part of the Vale of York, where the practice of letting work is more frequent, wages run from 1*s.* to 1*s.* 2*d.* per day, in winter, and from 1*s.* 4*d.* to 1*s.* 8*d.* in summer, without meat; or from 9*d.* to 1*s.* per day in winter, and from 1*s.* to 1*s.* 6*d.* per day in summer, with meat. But in that part between Easingwold and Thirsk, wages do not exceed 1*s.* per day in winter, and are from 1*s.* 2*d.* to 1*s.* 4*d.* in summer; without meat; but for mowing, from 7*s.* to 8*s.* per week, with meat, and in harvest 1*s.* per day, with meat, or 1*s.* 6*d.* without, are the usual rates: the time of labour is from daylight to dusk, in winter, and in most places from 6 to 6; but in others, from 7 to 5 in summer.

On the Howardian hills, the wages are from 10*d.* to 1*s.* per day in winter, and 1*s.* 6*d.* in summer, with meat. But at the western end of those hills, they are 1*s.* 2*d.* per day in winter, and from 1*s.* 4*d.* to 1*s.* 6*d.* in summer. The time of work from daylight to dusk in winter, and from 6 to 6 in summer.

On the southern side of Ryedale, the wages are from 1*s.* 3*d.* to 1*s.* 8*d.* per day in winter, and from 2*s.* to 2*s.* 6*d.* in summer. But on the northern side, they are from 9*d.* to 1*s.* per day, in winter, and 1*s.* 4*d.* in summer, with meat.

In the Marishes, 8*d.* per day in winter, and from 1*s.* to 1*s.* 6*d.* per day in summer, with meat, are the common wages.

In the eastern Moorlands, wages are 8*d.* per day in winter, and 1*s.* in summer, with meat; but for mowing, 1*s.* 6*d.* with meat; except in the eastern part, where they are 1*s.* 3*d.* per day in winter, and 1*s.* 6*d.* in summer. Hours of labour in the three last, the same as on the Howardian hills.

In the western Moorlands, wages for husbandry business (except mowing and hay-making) are scarcely established, there being very little employment of that nature, as the country is chiefly in grass. The wages given for mowing are 1s. 6d. per day, and meat; for hay-making 1s. per day, and meat: the miners have 1s. per day of 3 hours.

#### LABOUR BY THE PIECE.

	s. d.	s. d.
Thrashing wheat	from 2 0	to 3 0
Oats	— 1 0	— 1 2
Barley	— 1 3	— 2 0
Mowing Grass	— 2 0	— 2 6
Mowing Corn, including making the sheaves, set- ting up in stooks, and swathe raking	4 0	— 5 0
Shearing, including making the sheaves, and setting them up in stooks	6 0	— 7 6
Shearing and gaiting the great crops of oats which are grown in Ryedale	8 0	— 10 0
Heading hedges	0 6	— 0 8
Laying ditto	1 0	— 1 6
Under draining	0 6	per rood.
per quarter.		
ditto.		

Women's wages throughout the Riding, 6d. in winter, and 8d. per day in summer, except in harvest, when they have from 1s. to 2s. 6d. per day, according to the emergencies of the season, and the qualifications of the individuals. Women begin their work at eight in the morning, and continue to the same hour in the evening, as the men.

**SERVANTS BY THE YEAR.**

The wages of course vary, according to the qualifications of the individuals, and the cultivation of the country. In those parts where the country is chiefly arable, the wages are higher than where the country is chiefly in grass. In the Moorlands, £ 12. per annum is esteemed great wages for a head man, and £ 4. or from that to £ 5. per annum is the same for a woman; but in the more cultivated parts of the Riding, £ 16. for a head man, and £ 6. or £ 7. for a woman, is the common wages.

The time of changing servants in husbandry is invariably Martinmas.

*Accommodations of Labourers.*—The dwellings of the labourers are generally small and low, consisting only of one room, and very rarely of two, both of which are level with the ground, and sometimes a step within it. This situation renders them damp, and frequently very unwholesome, and contributes with the smallness of the apartments, to injure the health both of parents and children, for in such contracted hovels, numerous families are frequently compelled to reside. In the North Riding, the farmer is by no means well accommodated, but the labourer is much worse.

When we consider the importance of this class of people, that they are the *powers* by which the business of agriculture is performed, it is surely desireable that they should be accommodated with every convenience necessary, at least for their health.

It appears of considerable use to build several cottages, adjoining each other, that the families may have better opportunity of rendering mutual assistance to each other than if they were at a distance; besides, the conduct of each being under the eye of his neighbour, each may be induced thereby to demean himself more circumspectly; neither would it be any disadvantage were they not situated in a village, particularly in one that is large, or corrupted by alehouses. When an alehouse is near, labouring men

are often drawn into it, either by their companions, or from a desire of society, which is sometimes indulged at too great an expence.

Each cottage ought to have a garden, of from half a rood to one rood in extent; in this the occupier might raise a few vegetables, which would contribute to the comfort as well as the health of his family, and have the additional advantage of employing the man in the evenings, when his time might otherwise be spent to a less useful purpose.

A few dwellings have of late been built in different parts of the Riding, with some of these conveniences; and it is well worth the attention of land-owners to increase their number.

Many of the labourers keep a pig, and some a cow, the latter of which, I apprehend, is in general no advantage to them in point of profit, but may be in that of comfort, and perhaps health, since labourers in the country are often worse supplied with milk than the same class of people in a town, the farmers in general not making the selling of milk an object of their attention, and being in general unwilling to part with it, except to their own labourers, as they make of it old milk cheese, or maintain with it their pigs or calves.

## PRICE OF PROVISIONS.

*The following is the Price of Provisions at the several market-towns, about the end of the year 1792.*

	Winchester measure.						Beef per lb.	Mutton per lb.
	Wheat per bushel.	Oats per bushel.	Barley per bushel.	Rye per bushel.				
	s. d.	s. d.	s. d.	s. d.	d.	d.		
Reeth and Askrigg	6 6	3 3	-	-	-	-	3½	3½
Oatmeal 1s. 8d. per peck.								
Richmond	6 0	3 0	4 0	0	-	-	3½	3½
Bedale	6 0	3 0	4 0	0	-	-	3½	3½
North Allerton	5 8	2 8	3 9	4	8½	3	3½	3½
Thirsk	5 8	2 8	3 9	4	8½	3	3	3
Ripon	6 1	3 0	3 10½	-	-	-	3	3½
Easingwold	5 10	2 10	3 10½	4	7	3	3	3
York	6 1	3 0	4 3	-	-	-	3½	4
Butter at York, at 38s. 6d. per firkin (each 56lb.)								
Skim-milk cheese at York, 3s. 3d. per stone (14lb.)								
Bacon at York 6s. 3d. per stone, (14lb.)								
Malton	5 10½	2 9	4 1	-	-	4½	4½	
Kirby Moorside	5 8	2 7	-	-	-	3	3½	
Pickering	5 8	-	-	-	-	4	4½	
Scarborough	5 8	-	-	-	-	3½	4	
Whitby	5 8	-	-	-	-	4	4½	
Guisborough	5 3	-	-	-	-	3	3½	
Stokesley	5 3	-	-	-	-	3	3½	

Cleveland. New milk cheese 37s. to 42s. per cwt. (112 lbs.)

Butter from 34s. to 38s. per firkin, of 56lbs.

Turnips £4. 4s. per acre.

Hay from 8d. to 10d. per stone, of 14 lbs.

Wool of the pasture sheep £8. per pack (240 lb.), or at 10s. 8d. per stone, of 16lbs. each.

Western Moorlands sheep, £ 3. 16s. per pack, or at 5s. 0*½*d. per stone, of 16 lbs. each.

Eastern Moorlands sheep, £ 3. 12s. per pack, or at 4s. 9*½*d. per stone, of 16 lbs. each.

The above are the prices of the best of each article; wheat of an inferior quality might be bought at 3d. or 6d. per bushel less, and shambles meat of that quality at 1d. or 1*½*d. per lb. under the above prices.

Shambles meat is always considerably dearer from the time that the turnips are consumed to Midsummer, owing to the farmers in general not providing against that naturally scarce time; and it has been this winter from  $\frac{1}{2}$  to 1d. per lb. lower than usual at this season of the year, on account of large numbers of half-fed cattle being killed, from an apprehension of a scarcity of hay, and from the diminished consumption of fat cattle in the manufacturing country, owing to the great stagnation of trade.

Corn also generally advances towards spring, and usually continues to rise until near harvest, unless kept down by importation.

The prices of oats and barley have been unusually high ever since last harvest, owing chiefly to the unusual dryness of the last summer, which caused in them a failure of crop. The price of oats, in particular, may have been somewhat also increased by the exportation of them for the use of the armies on the Continent.

A large proportion of the oats produced in the North Riding, are consumed by the manufacturers in the West, and their great price may have been the means of increasing that of wheat; which, though an extraordinary good crop the last summer (as it always is in this country, when the summer is dry), has been higher by near 6d. per bushel than what is usual in other years.

Butter and cheese bear a greater price than common, because the drought of the last summer greatly diminished the produce of them, and increased the price of turnips and hay, the former being sold at the beginning of the winter, in 1793, as high as six guineas per acre, even when eaten upon the land with sheep; though on account of the mildness of the winter, the price fel

before the end of the year to four guineas, and since that time to a still lower sum, while the price of hay of late years, has usually been from 4d. to 5d. per stone, though it is this winter as high as 8d. or 10d. per stone.

The price of wool is considerably lower than in the year 1792, the manufactures then being in so flourishing a situation that long wool was sold at from 13s. to 14s. per stone (16 lbs.), and was rapidly increasing in value till the commencement of the present war; since which it has declined to from 9s. to 10s. 6d. per stone, and is still declining.

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### STATE OF THE ROADS.

*Turnpike Roads.*—Some of the turnpike roads in the North Riding are very good, and the rest are in an improving state; great improvements have been made in some of them, particularly in that from York to Malton, by lowering the hills, straightening and widening the road, and building bridges. Considerable pains are also bestowed upon some of the roads in scraping them, which, as it causes them to dry more quickly, makes them last much longer, at all times renders them pleasanter to the traveller, and lessens the draught of the carriage. On others, however, there is equal neglect in this respect, as well as in not filling up the ruts and holes, as frequently and as soon as they are made.

*Parochial Roads.*—Some of the parochial roads in the Vale of York are in a pretty good state, though rough yet sound; but a great neglect prevails in the management of many of them; some are stoned upon the natural surface of the ground, and the ditches on each side suffered to remain all winter brimfull of water, by which roads in any country would be greatly injured, but in this flat and in general wet country they are almost destroyed.

In that part of the Vale betwixt the western end of the Howgill Hills and the rivers Ure and Ouse, the parochial roads are generally in a bad state, no good materials being to be met with

in the neighbourhood; and this is greatly increased by a neglect which almost universally prevails, of not laying a small quantity of spare materials on the sides of the roads, to repair any bad place as soon as it is made; in consequence of which, much additional labour is required at the future repair.

At Tollerton, in the last mentioned district, the assessments for the highways amount frequently to 9d. in the pound, real rent, besides statute duty.

The parochial roads on the Howardian hills are generally made too narrow and steep at the sides, and are very rough, the stones not being sufficiently broken.

In the lower part of Ryedale and the Marishes, the parochial roads are in as bad a state as possible: good materials are scarce in some parts of these districts, but care and attention much more so in them all. Many of these roads are upon the natural soil; and in winter not passable without great danger and difficulty, if passable at all. No part of England produces worse roads, either turnpike or parochial.

Several of the tunnels and bridges in this district are also not sufficiently capacious to admit the water, which after heavy rains comes down very suddenly from the neighbouring mountains, and lays some of the roads for a considerable distance so much under water, as to cause a very great inconvenience, if not danger, to travellers.

The parochial roads along the coast are generally very narrow, steep, and rough, too little attention being paid to breaking the stones.

Cleveland holds out an example highly worthy of being followed by every part of the nation.—The roads may all be called turnpike, and may be ranked in goodness with the foremost of those of that description; yet without any toll, the whole of the road from Thirsk to Stokesley (a distance of 20 miles) may be travelled; and also all the other roads through the district of Cleveland: they were a few years since put into complete repair, and are still maintained in the same state by voluntary subscription, and the statute duty of the inhabitants.

These roads are not made wide, but are in an excellent form; the bed of the road is considerably raised above the natural surface on each side; the barrel is generally about five yards wide, and forms about the sixteenth part of a circle, the whole of which is stoned; this form just allows sufficient fall for the water to drain off, but is so nearly level that the carriages are not confined to one track, and consequently the road lasts much longer than when laid in an higher curve; considerable pains are also bestowed in keeping them clean scraped, and repairing them as soon as it is requisite.

The roads upon both the Moorlands are rough and hilly; those passing through and along the dales (particularly of the eastern Moorlands) are very narrow and rough, but in the larger dales of the western Moorlands are in a pretty good state.

Over the eastern Moorlands, between Kirby Moorside, and Egton, for the distance of 11 miles, a road has lately been cut; the earth is taken from the sides of the road, so that the barrel is formed without any of it being thrown upon the crown, but it is laid in heaps on each side of the road, which enable the traveller more easily to trace the line of it during storms of snow, to which this dreary tract is so liable in winter.

This practice ought to be generally followed upon both the Moorlands, where snow in winter, and many extensive mosses at all times, render them very dangerous to strangers who are under the necessity of traversing them.

In the dales of both the Moorlands, some bridges are wanting across the streams which sudden showers raise in a very short time to an alarming height, and whose great rapidity and rough bottom make them very dangerous to pass, in attempting which many men and horses have been lost.

The roads in the North Riding are almost wholly repaired by statute duty, which is performed under the direction of two surveyors of the highways, appointed annually; but an exception is met with in a township on the north side of the Howardian hills, where the practice is to employ a person by the year to do all the carriage-work, and keep the roads in repair, the expence of which

is raised by an assessment laid upon the inhabitants: this has not been long practised, but it is apprehended the roads are kept in much better repair, at less expence, and less inconvenience to the farmers, than by the former methods.

*Guide Posts.*—There appears to have been more attention paid to the fixing of guide posts in time past, than in keeping them in repair at present: many of them have their arms broken off, or are so defaced as not to be legible, and many more are entirely wanting; without which it is very difficult for a stranger to find his way, in almost every part of the Riding.

### WOODLANDS.

When the extent of the North Riding is considered, that of the woods will be found comparatively small: their amount cannot be spoken of with perfect exactness, but the following estimate of them in each district of the Riding, is as near the truth as could be ascertained during the present survey, but is thought to be within the quantity.

	Atres.
The Coast	3000
Cleveland	1500
The Vale of York, with the Howardian hills	11000
Ryedale, with the East and West Marishes	6000
The Eastern Moorlands	3000
Western ditto	1000
	<hr/>
	25,500
	<hr/>

Exclusive of the above, the North Riding produces a considerable quantity of timber in the hedge-rows; particularly in those of the Vale of York, the Howardian hills, and Ryedale; though

in them, as well as the Woodlands, far less now than at no distant period heretofore; nor has the size of the timber that remains decreased faster than the number of the trees. There is reason also to believe that woods formerly covered great tracts of country, where not a tree now remains; and which, it is the present opinion, are incapable of growing timber; but evident remains of trees, and traces of woods, still indicate that the Moorlands were once a forest. The spontaneous produce of the Woodlands is principally oak, ash, and the broad-leaved, or witch elm; the produce of the mountains, much birch and alder; and of the hedge-rows, and cultivated places, various other trees, the consequence of improvements and art.

Many of the woods are under the course of what is called *spring felling*, that is, felling the trees as near as possible to the ground, but so as not to injure the crown of the root; by which management, a fresh and numerous succession of shoots soon rises from the old stool, and after being occasionally thinned during the period of their growth, and having been well defended from cattle, in about 30 years are again ready for the axe: Oak, ash, and broad-leaved elm, are equally capable of this reproduction of timber from the old root.

Spring wood, from its age, is of course small, but serves for many purposes of husbandry and country use.

Some, in going over their woods about every 20 years, raise a constant succession of timber, by leaving each time a certain number of the most likely young trees on each acre, and a certain number of every preceding thinning; so that at the same time that they leave a considerable number of trees of 20 years old, they leave also a certain number of twice, three times, four times, or upwards, of that age; fewer of each in proportion to their age. This method seems to raise the best trees, and greatest quantity of timber, because the wood, suffering little alteration, affords the most uniform and regular protection to the growth of the trees; and probably is the most profitable mode of managing woodlands. In these woods, some of the timber arrives at proper maturity

before it is cut down, and is fit for ship-building, or any large purposes.\*

When woods are suffered to grow to their full size, it is the practice of several to have them thinned of the underwood and other smaller growing trees, as often as these last acquire a size sufficient to make them useful for rails, stakes, or bindings for hedges, or other similar purposes, which is generally once in about 7 years; at last the whole wood, when arrived at maturity, is cut down at the same time, and again trained in a similar manner for timber.

*Selling.*—It is the practice in this Riding to sell the falls of wood to professional wood-buyers; these cut up the trees in the woods, according to the purposes for which they are best calculated, and the most valuable. It may happen, that in a tree there may be some particular bend, which may be of double the value for ship timber that it would be for any other purpose; while another part of the tree may be of the greatest value for house-building, or for particular purposes of manufactures or husbandry. By this mode of manufacturing the timber, by means of a middle-man, between the grower and consumer, much inconvenience is avoided: the consumer, let him be ship-builder or house-builder, can suit himself with such pieces as are best calculated for his purpose, without the inconvenience of purchasing along with them a quantity of timber not calculated for his business.

All the ship timber grown in the Riding is thus cut up in the woods, into shapes ready for the builder to make use of; where carriage is so expensive as in some parts of this Riding, owing to the difficulties of the roads, and the great distance, the timber is carried by land to the yards, at an expence amounting in some instances to one half of the value of the timber, or upwards: this mode of manufacture causes an essential saving to the ship-builders; trees may have imperfections, which till they are cut

\* No objection seems to arise to this mode of management, except the additional trouble that is required at the time of felling the timber, to prevent it in its fall from doing any injury to that which is intended to remain.

into may not be discovered ; by cutting them up in the woods, these blemishes are probably detected, and the heavy expence of carriage of such faulty and useless timber saved to the builder.

The oak timber grown in great part of this Riding, though not large, is most excellent ; produced as it chiefly is, upon sound and often rocky ground, its growth is very slow, which renders it extremely hard and durable ; and probably to the use of much of it the ship-builders of Whitby owe their riches, and the ships they build their great celebrity.

*Plantations.*—Planting, considering the great number of proprietors of extensive estates, and the great proportion of land which lies in an unprofitable state, and is fit for little else than being planted, has been very little attended to.

The late Sir Charles Turner made some extensive plantations upon the eastern Moorlands, near Kildale ; but dying soon after, they have not received that attention which otherwise might possibly have been shewn to them.

One very extensive tract is entirely destroyed ; and though a considerable number of acres remain in other places which are thriving, where the trees stand sufficiently close to shelter each other, yet even in them, in many places, they are very thin ; whether they were originally planted so, or have become so by casualties, does not appear ; those that are left, however, shew that trees will thrive even upon the highest, most exposed, and barren of the Moors.

The kinds are chiefly Scotch fir, larch, and spruce, with some oaks, and a few beech.

Considering the disadvantages which these plantations have laboured under, the trees that remain hold out sufficient encouragement for planting in that country.

The late — Cholmeley, Esq. and his son, Francis Cholmeley, Esq. of Bransby, have made some considerable plantations of larches and firs upon the sides of the hills, and other barren parts of their estate, which were not worthy of cultivation.

The plantations were begun about 36 years since, and have been annually increased from that time ; some of the first planted-

larches have been cut down, and measure from 40 to 55 feet in length, and from three to four feet four inches in girth.

Francis Cholmeley has found that the timber of the larch is very durable for every purpose ; he has used it for gate-posts ; and has had some of them taken up after having been in the ground 14 years ; which he says, were as sound and perfect as when cut out of the tree.

The plantations already finished have a pretty large mixture of firs and other trees, but the larch being so much more valuable, thriving so well, and being of such quick growth, he intends in future chiefly to plant it.

He estimates his planting to cost him not more than 50s. per acre at the utmost, as he is in the practice of raising his own plants in the following manner :

The beds, on which the seeds are to be sown, are dug in the spring, and the larch cones laid upon their surface ; these the sun and winds drying, cause them to open and shed a considerable part of their seed, and the cones are afterwards beaten to get out the remainder ; they are then covered very slightly with earth, and kept clean weeded. At first great care is necessary to keep the birds from them, otherwise they will pick off the seed from the head of the plants just peeping above ground.

The plants are pricked out at one year old, and he finds it best to transplant them a second time, and finally plant them out at four years old ; though those which have been only once removed, answer to be planted out at three or four years old, but the roots are not so good as of those which have been twice transplanted.

Several other plantations have been made in the Riding, but not to any great extent ; where made, they are generally thriving, and likely soon to repay their owners.

*COMMERCE AND MANUFACTURES.*

Whitby, a seaport, may be ranked as the first for the extent of its commerce, employing many ships in the carrying trade; some in the Baltic trade, several on the coast, and some in the whale fisheries.

At Whitby is also a considerable manufactory of sail cloth.

Scarborough, another seaport, sends several ships into the Baltic and to Holland, and employs some on the coast.

Here also is a considerable manufactory for sail cloth and sacking.

In the dales of the eastern Moorlands, and in Cleveland, some coarse linens are manufactured, many of the small farmers employing two, three, or four looms for weaving them.

At Crathorne in Cleveland, is also an extensive bleach-yard, and a beetling mill,\* where linens are made up similar to the Irish.

The dales of the western Moorlands have long been famous for the manufactory of knitted stockings. The present mode of agriculture of that country not affording the inhabitants much employment, this of knitting makes up the deficiency; and they are so expert at it, that it is very common for them when walking along the roads, or in the fields, to be employed in knitting. But this ancient employment is upon the decline; since the increase of manufactures in the West Riding and in Lancashire, spinning worsted has been introduced; and being a more agreeable employment to the inhabitants than knitting, it is likely the latter will, in the course of a few years, be in great measure laid aside.

In Wensley Dale, in the years 1784 and 1785, three cotton mills, and a scribbing mill were built, and a few calicoes have been made; also in the year 1793, a small mill was erected for carding waste silk.

At Masham there is a cotton and a worsted mill; and in that

\* Is a mill for glazing linen cloth by means of beetles of wood, which strike it as it passes slowly over a rolling cylinder.

neighbourhood some shalloons and shags are manufactured, but not to a great extent.

The effect manufactures, carried on to their present slight degree, have had upon the agriculture of this district, has probably been rather beneficial than otherwise. They have in some degree increased population, and also the profits of the lower class of people, and thereby advanced in a proportionate degree the produce of the land ; and the land itself has become more valuable, by being occupied in smaller allotments, and at a higher price by the manufacturers than a farmer could afford to give for it.

The linen manufactory in the eastern part of the Riding, and the woollen and cotton manufactory in the western part, are (in their present state) rather an advantage to agriculture, without being very prejudicial to the individuals who carry them on, by corrupting their morals, or impairing their health.

The cotton mills, &c. no doubt would be found more beneficial to the interests of agriculture, were they not built upon so extensive a scale ; where people are collected together in large numbers, their morals are liable to be depraved, their health injured, and when employed young, their growth lamentably impeded, and strength impaired. At these mills great numbers of children are employed, and there meet with nurseries of vice, whatever they may do of industry.

*Practices in Agriculture that would be of Service in other Counties.*

The practice of ploughing with only two horses, and those abreast, is well worth the attention of farmers, in those counties where three and often four are unnecessarily used. A Yorkshire ploughman will by himself plough full as much land in the same time with two horses, and full as well, as a south-countryman will with four and a driver. In this district, in summer time, an acre

and an half per day is generally, and where circumstances are favourable, two acres per day are frequently ploughed.

The industry of the female sex of this Riding, is an excellent example to those of most of the counties south of it. Here the hay is almost wholly made by them, and they generally perform one half of the harvesting; they take their share too in hoeing of turnips and potatoes, and do much other light business of the farm.

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#### *AGRICULTURAL SOCIETIES.*

There are no societies in this Riding for the improvement of agriculture. There was one a few years since at Richmond, but either through a want of unanimity and perseverance in the members, or from a deficiency of their subscriptions, the institution has dropped.

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#### *How far the People have a Spirit for Improvements, and how such a Spirit would be best excited.*

In most parts of the Riding, particularly in the Vale of York, on the Howardian hills, and in Ryedale, with the Marishes, there appears to be a strong desire in many individuals to make improvements, both in the cultivation of their land, and in the breed of their stock; but a considerable proportion of the farmers, particularly of the elder class, not having had the most liberal educations, have but little inclination for reading; and having never been accustomed to travel much from home, are in a great measure ignorant of the improvements which have been made in other counties; and if a more enlightened neighbour should strike out any thing new, or adopt an improvement from a distant part in his prac-

tice, are too apt to laugh at his foolishness, for thinking himself wiser than their forefathers, who saved money upon their farms by *the good old practice*. Thus through the prejudices of education, or rather for the want of it, improvements in agriculture are much longer in being generally adopted, than those in any other science.

It is generally thought by the most spirited improvers, that if any societies were established, the members of which would communicate useful knowledge upon agriculture, and give premiums to the best cultivators and improvers of stock, that a spirit of improvement would soon be stirred up in the more intelligent farmers.

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*Obstacles of Improvements, with the means of their removal, and Hints for other Improvements.*

*Obstacles to Improvements.*—The want of greater confidence between landlords and tenants, appears to be a great obstacle to improvements, the landlord being afraid that the tenant should take improper advantages upon his farm, and thereby injure it, and the tenant being afraid of making any improvements lest his rent should be advanced in consequence of it, or he discharged from his farm.

Though this confidence appears somewhat difficult to be accomplished, yet if the landlords and their agents were better acquainted with the principles of agriculture than they generally are, and the farms let under proper covenants, with a scale of husbandry adapted to the soil, that difficulty would in a great measure be removed; instead of restricting the tenant to plough the same land which has been in ploughing for a century past; and to continue that land in grass which has been in that state at least as long, the landlord would see the propriety of suffering the tenant to change his land oftener, and would hit upon some

mode, by which the tenant might have those liberties without injuring the farm ; whereby not only the landlord and the tenant would be benefited, but the public also, by the additional quantity of produce which would be brought to market.

The taking of tithes in kind, or advancing the rent of them as improvements are made, are a great obstacle to improvements. Though most of the parishes of this Riding are liable to tithes in kind, yet there are many which are exempt from them ; and where taken in kind, it does not appear that a rigid mode of exacting them is *generally* practised by the tithe-owners.

*Game*,—(where large quantities are bred) is a considerable check to improvements. Hares and pheasants, particularly where they abound, are very destructive to the corn in spring, and to turnips in winter ; many of the last being wounded by them are lost to the farmer, as they rot, unless they are eaten by his stock soon after they have received the injury.

The practice of hunting is also very injurious to farmers ; the winter corn in wet situations, and turnips in all, are often much damaged by the horses, the fences broken, and gates left open, whereby different stocks get mixed, or commit trespasses.

To prevent those inconveniences and injuries to farmers, may not the propriety of abolishing the game laws, as they now exist, and making the game the property of the occupiers, be without impropriety suggested?

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### IMPROVEMENTS.

*Estates*.—Many estates might be greatly improved by the fields in each farm being laid more compact and nearer each other ; and if instead of the farm houses standing in villages, they were to be built in the most convenient situation upon each farm.

It would be to the advantage of the landlord, as well as tenant, if the former were to be at the expence of all capital improve-

ments, such as buildings, the planting of new fences, draining, and such like improvements, for which he might lay on an additional rent, equivalent to the interest of the money laid out : the tenant by this means would have his whole capital to employ in the cultivation and stock of his farm.

It would also be of great advantage to agriculture if the fallows, as well as the manure of each farm, were made to belong to it, by the landlord's purchasing them on the first change of a tenant : if this were to become the case, a scale of husbandry for a number of years would be necessary, specifying in each year, the crop and cultivation of every field in the farm, and the manner of making the fallows ; thus would the landlord be perfectly safe, and avoid the disagreeable consequences of a bad tenant leaving his farm, which he too often does for the sake of selling the manure off the premises, and reaping his way going crop the succeeding summer, upon the land which was fallow the preceding year. The tenant entering upon a farm thus circumstanced, would have the advantage of having less money to advance ; for if the farm had 30 acres of fallow, it would require a less capital by at least 100 pounds.

*Cultivation of the Land.*—By the extinction of summer fallows, and substitution of green crops, as turnips, clover, rape, or tares to be mown, or meliorating crops, such as pease or beans, for all which (excepting the clover) the land should be manured and the crop clean hoed. By this means the land would be put into an equal, if not a better state, for producing a succeeding crop, than if it had been a summer fallow. It would be also to the farmer's interest if he were never to take two crops of corn in succession.

Grass seeds also for temporary leys should be more frequently sown than is at present practised in this district.

The growing of turnips without manure is a point extremely desirable to be obtained throughout the Riding, as it now is in a great degree in the northern part of the Vale of York ; by this great improvement the manure of the farm, which is generally entirely consumed for the turnip crop, is spared for the grass land.

To remedy the want of green food from the time that turnips are finished, to that of entering upon the pastures, nothing has been found equal to the ruta baga. It is in high perfection a month later than turnips, the cultivation is the same for both, and though each of this new species may not grow to so large a size as of those of the old one, yet will it produce as weighty and valuable a crop, as each root is more ponderous in proportion to its size, and a greater number of them may be left upon the ground at the time of hoeing : there is also reason to think that this is more nutritious than the common turnip. Sheep are much fonder of it than of turnips, pigs thrive full as well on it as on potatoes, and horses will eat it freely.

Upon these considerations, the following scales of husbandry are offered, the one for a light soil, the other for a heavy one, and are formed agreeable to the foregoing principles of cultivation.

SCALE OF HUSBANDRY ON A FARM OF ONE HUNDRED ACRES OF LIGHT SOIL.

Field.	1794.	1795.	1796.	1797.	1798.	1799.	1800.	1801.	1802.
No.	1. Grass ley, 3 years old	2. Wheat or rye	3. Turnips	4. Barl. or oats	5. Clover	6. Turnips	7. Barl. or oats	8. Grass ley	9. Grass of 2d. year
1.	Turnips	Barl. or oats	Clover	Turnips	Barl. or oats	Turnips	Barl. or oats	Grass ley	Grass ley
2.	Barl. or oats	Turnips	Clover	Barl. or oats	Turnips	Barl. or oats	Grass ley	Grass	Grass
3.	Turnips	Clover	Turnips	Barl. or oats	Grass ley	Grass	Grass	Wheat or rye	Wheat, rye, or oats
4.	Turnips	Barl. or oats	Grass ley	Barl. or oats	Grass	Wheat or rye	Wheat or rye	Turnips	Turnips
5.	Turnips	Barl. or oats	Grass ley	Barl. or oats	Grass	Wheat or rye	Wheat or rye	Barl. or oats	Barl. or oats
6.	Turnips	Barl. or oats	Grass ley	Barl. or oats	Grass	Wheat or rye	Wheat or rye	Turnips	Turnips
7.	Barl. or oats	Grass ley	Grass ley	Barl. or oats	Grass	Wheat or rye	Wheat or rye	Barl. or oats	Barl. or oats
8.	Grass ley	Grass ley	Grass	Barl. or oats	Grass	Wheat or rye	Wheat or rye	Turnips	Turnips
9.	Grass of 2d. year	Grass	Wheat or rye	Barl. or oats	Turnips	Barl. or oats	Barl. or oats	Barl. or oats	Barl. or oats
10.	Perennial ley								

Each year there will be of

Wheat, or rye

Barley, or oats

Turnips

Temporary grass ley

Clover

Perennial ley

A. R. P.

10 0 0

20 0 0

20 0 0

30 0 0

10 0 0

10 0 0

Total 100 0 0

99

*Remarks.*—If winter tares are found to resist in this Riding the severities of winter, I should recommend the land on which the wheat or rye was grown to be ploughed immediately after harvest, and sown with them along with some rye. This crop might either be pastured off with sheep, during the scarce time after turnips are finished and before the pastures produce any grass, or might be mown and made into hay in time to sow with turnips, provided the land was clear of quick grass. But if winter tares are found not to thrive, rape and rye mixed might be sown in lieu of them, to be eaten off with sheep after the turnips are finished, or vetches might be sown in spring to mow for fodder.

The clover should not be mown more than once at most, the first crop of which would answer best for that purpose; the latter produce, and that of the next spring, until the commencement of turnip seed time, being eaten with sheep would greatly enrich the land, and clover growing early in spring would equally increase the quantity of sheep food during that period of scarcity, and lessen the quantity of labour at that busy time of the year.

A light soil once ploughed after the clover, would be more likely to bring turnips than if oftener ploughed.

If a hand manure, such as soot, pigeons' dung, rape-dust, or the like, can be conveniently had, it might be prudent to use it, but if it cannot, there is no doubt but that a good crop of turnips would be obtained without it.

Land that is frequently cropped with clover, is in the opinion of many farmers apt to tire of it; in the above rotation the land is in clover only once in nine years.

About four or five acres of the turnip land ought to be sown with ruts bags, a part of which might be applied to the milch cows or feeding cattle, and the remainder to the sheep after the other turnips were consumed.

The perennial ley, with either the clover or the temporary ley of the third year, may be mown.

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**SCALE OF HUSBANDRY ON A FARM OF ONE HUNDRED AND THIRTY ACRES OF HEAVY SOIL.**

Fields	1794.	1795.	1796.	1797.	1798.	1799.	1800.	1801.	1802.	1803.	1804.	1805.
No. 16 Oats or beans after grass	Turnips	Oats or barl.	Clo. or pease	Wheat	Beans	Grass ley	Grass	Grass	Grass	Grass	Grass	Grass
1. Turnips	Oats or barl.	Clo. or pease	Wheat	Beans	Grass ley	Grass	Grass	Grass	Grass	Oats or beans	Turnips	Oats or beans
2. Oats or barl.	Clo. or pease	Wheat	Beans	Grass ley	Grass	Grass	Grass	Grass	Grass	Oats or beans	Turnips	Oats or barl.
3. Oats or barl.	Clo. or pease	Wheat	Beans	Grass ley	Grass	Grass	Grass	Grass	Grass	Oats or beans	Turnips	Oats or barl.
4. Clo. or pease	Wheat	Beans	Grass ley	Grass	Grass	Grass	Grass	Grass	Grass	Oats or beans	Turnips	Clo. or pease
5. Beans	Grass ley	Grass	Grass	Grass	Grass	Grass	Oats or beans	Oats or beans	Oats or beans	Oats or beans	Turnips	Wheat
6. Beans	Grass ley	Grass	Grass	Grass	Grass	Grass	Oats or beans	Oats or beans	Oats or beans	Oats or beans	Turnips	Beans
7. Grass ley	Grass	Grass	Grass	Grass	Grass	Grass	Oats or beans	Oats or beans	Oats or beans	Oats or beans	Turnips	Grass ley
8. Grass	Grass	Grass	Grass	Grass	Grass	Grass	Oats or beans	Oats or beans	Oats or beans	Oats or beans	Turnips	Grass
9. Grass	Grass	Grass	Grass	Grass	Grass	Grass	Oats or beans	Oats or beans	Oats or beans	Oats or beans	Turnips	Grass
10. Grass	Grass	Grass	Grass	Grass	Grass	Grass	Oats or beans	Oats or beans	Oats or beans	Oats or beans	Turnips	Grass
11. Grass	Grass	Grass	Grass	Grass	Grass	Grass	Oats or beans	Oats or beans	Oats or beans	Oats or beans	Turnips	Grass
12. Grass	Grass	Grass	Grass	Grass	Grass	Grass	Oats or beans	Oats or beans	Oats or beans	Oats or beans	Turnips	Grass
13. Perennial ley	Oats or beans											

By this scale of Husbandry there will be in each year, of

A. R. P.

Oats or beans	-	-
Oats or barley	-	-
Wheat	-	-
Beans	-	-
Turnips	-	-
Clover, or pease	-	-
Temporary grass ley	-	-
Perennial ley	-	-

Total 130 0 9

*Remarks.*—As soon as the crop of oats or beans after grass is harvested, the land should be ploughed over, and sown with rape and rye for spring feed for sheep, which is so much towards fitting the land for the succeeding crop of turnips.

It would be a great advantage to the crop of beans, if the land, as soon as the preceding crop of wheat was harvested, were to be ploughed in narrow ridges of about four furrows each, and well gripped, to carry off all surface water; by this means the land would be laid dry, and would be greatly meliorated, by so large a proportion of surface being exposed to the frosts. The land in spring ought to have two ploughings, and be manured; the beans ought also to be sown in rows, to admit of the land being more effectually cleaned and hoed. When the beans are harvested, the land should be again laid up in ridges as in the preceding year, and in spring should be ploughed twice, and made fine by harrowings, and the grass seeds sown.

A part of the land set out either for turnips or beans, might be profitably applied to the growth of some Scotch cabbages, or ruta baga.

The fields which have been in grass four, five, or six years, or the two last and perennial ley, along with the first crop of clover, would be the most proper to mow for hay.

The reason of there being one field set out for old sward in each scale, is from a supposition that there may be a piece of rich grazing or meadow ground, which the landlord would not wish to be ploughed out; but where there is not any grass land of that description, I should recommend the whole to be thrown into the course.

*Potatoes.*—The raising of new varietes of potatoes from seed, is worthy the attention of farmers; for there is reason to believe that new kinds might be produced, which for a few years would be much more productive than those generally in use at this time.

*Sainfoin.*—The cultivation of sainfoin upon lime-stone soils cannot be too much encouraged, its value for hay being suffi-

ciently proved, and several parts of this Riding being well qualified for the growth of it, where at present it is little known.

*Watering of Meadows*—would be found extremely beneficial in this Riding, the greatest part of it being peculiarly adapted to this improvement.

*Fences*.—From that ruinous practice of heading down hedges, as before described, the tenant ought always to be restricted.

White thorns for hedges ought to be planted much older than is the present practice. Instead of plants of three years old, with their tops cut off by the ground, it would be better if they were not used till 6 years old, and had been at least transplanted once in the nursery, and while there, at 4 years old had been cut down to the ground.

When they are planted out for the fence, it is much the best practice not to cut the tops off, but leave them on their full length, and in three years after to lay them about one foot or 16 inches high. By this means a most excellent hedge is obtained sooner by several years than by the common mode, and much labour saved in the protection of it. When the thorns are planted so small, with their tops cut off, great attention is necessary in protecting them from injury by weeds.

When the hedge has got to a considerable size and thorns are wanted, or if it should grow rather open at bottom, an opportunity should be taken when the field on one side is either in ploughing or meadow, to cut off all the stems on that side that can be spared, within one inch, or two inches at most of the ground, and to dress off all the lateral branches to the top. The next year the other side should be treated in the same manner, leaving a sufficient number of stems in the middle of the hedge; but if both fields should be free from stock, it would be best for both sides to be trimmed at the same time. By this management the hedge is renewed and made extremely thick and beautiful (much more so than when clipped) and the farmer is supplied with stakes and thorns for the repairing of dead hedges.

*Cattle*.—It is the general opinion of the most intelligent

breeders, that the present breed of horned cattle in this Riding, may be most improved by selecting the best of their own kinds ; how far this may be true in fact, it is difficult to determine, until more attentive trials have been made : a cross with the Sussex breed appears to have been tried in Ryedale with good success. Some breeders are also of opinion, that the first cross with a Galloway Scot answers extremely well, but afterwards that the breed is much hurt by it ; others are of opinion, that the breed is improved by the first cross with the long horned breed, but have the same objection to it afterwards, as the others have to that of the Galloway Scot.

If these crosses answer, in which the blood of each breed is equally mixed, the objections which arise from having an unequal mixture by more of one blood being in the breed than of the other, may easily be removed, by putting the half bred cows to a half bred bull, which would keep their descendants in the same state of improvement with themselves.

*Sheep.*—More attention appears to have been paid to the improvement of the sheep stock than to that of the cattle. The sheep of the low lands, I apprehend, are in as good a line of improvement as they are capable of being put into ; and nothing more seems wanting, except the means of opening the eyes of those breeders who are prejudiced against, and will not see the advantages of the improved breed.

The sheep stock of the Moorlands is greatly in want of improvement, both in wool and carcass ; the former being generally extremely coarse and very open, does not so fully resist the severities of the weather, to which they are exposed on the high country they inhabit, as if the wool were more closely set. A quality for feeding at an earlier age than they now possess, is also very desirable to obtain.

These improvements might in a great measure be obtained by a slight cross with the Dishley breed, in the following manner :

A few moor ewes being selected, which have the finest and the closest set fleeces, a ram of the Dishley breed, but with short

close-set wool should be obtained from the most barren soil on which such sheep are bred, to put to them; the male produce might be used as rams to ride the stocks. How far this cross would answer cannot be said, but seems worthy of trial, by farmers whose situations might be convenient for the purpose.

It has been suggested by a breeder on the borders of the western Moorlands, that the present stock upon them might be gradually changed for the Cotswold breed on the lower parts, and the south Down breed on the higher parts, with great advantage; but it does not appear that either has been attempted.

It has also been suggested, that the sheep of the eastern Moorlands might be improved by the use of rams from the higher parts of Scotland or Northumberland.

*Weights and Measures.*—Within the North Riding there is a considerable variety in the weights and measures, which also vary from those in adjoining districts; from these, as from every variation of the kind, considerable inconveniences arise, particularly from the great inequality of the measure of corn, which at present seems to rest entirely on the will of the farmer, and throws great difficulties on him who is desirous of selling his produce by the statute measure; because the corn-buyers who are accustomed to a market, know the respective measures of each farmer, and of course prefer that which is largest, since they pay no more for it than for that which is agreeable to the statute.

In the northern part of the Riding the customary bushel exceeds that of the Winchester by full two quarts; but nearer to the southern extremity, seldom by more than one.—The bushel of some individuals in the Riding is still larger, measuring about 10 per cent. more than the statute requires.

A stone of wool in York market, is 16lb.; and 4 oz. in each stone are allowed for draft; that is, for the draft of each fleece; the wool-buyers being empowered by act of parliament to weigh each fleece *separately*, if they like.

At Ripon market, a stone of wool is 16lb. 12 oz.

A stone of wool in the western Moorlands, is 17 $\frac{1}{2}$ lb.; the half pound I apprehend is for draft, as in York market.

In the eastern Moorlands the weights used by individuals vary up to 19 lbs. to the stone.

The pound of butter in the Riding varies from 16 to 24 ounces.

A stone of all other commodities throughout the Riding is 14 pounds.

Nothing is more desirable than that an uniformity of weights and measures should take place, nor would any thing be more advantageous to the public.

### *WASTE LANDS, AND THE IMPROVEMENT OF THEM.*

It appears in the Introduction to this Report, that the quantity of lands in this Riding lying waste, or in a state of nature, is 442,000 acres ; which may be divided thus :

Capable of cultivation, or of being converted into pasture, or rabbit warrens,

	Acres.
Detached Moors	18,435
Of the eastern Moors, about	60,000
western ditto	<u>150,000</u>
Total capable of cultivation, &c.	<u>228,435</u>

Capable of improvement by planting only.

Of the eastern Moorlands	136,625
western ditto	76,940
Total capable of improvement, &c.	<u>213,565</u>

The detached moors in the country, are generally depastured by all kinds of stock, each occupier turning on any kind, and in any proportion he likes ; a few of the commons are stocked with rabbits by the lord of the manor. These wastes are annually

lessening in a considerable degree; by inclosures under acts of parliament.

The eastern Moorlands are principally stocked with sheep at the will of the farmer, and it has been calculated in the proportion of one sheep to 10 acres.

The lower parts of some of the eastern, and generally those of the western Moorlands, with some of the higher parts of the latter, are stinted pastures; that is, the owners or occupiers have a right of pasturage for a certain number of cattle or sheep during the summer half year; but in winter that ground is common to all who have a right upon it in summer, to turn on what quantity of stock they like.

Those pastures are chiefly stocked with young cattle, horses, and such sheep as are intended to be sold off the same year.

The remainder of the high parts of these moors is without stint, producing little but ling, and is stocked mostly with sheep.

The pasturage of these moors and pastures while they are common, is greatly monopolized by a few individuals, some of whom occupy but small farms, consequently their right upon the wastes ought to be in proportion to them. These people about Midsummer go to the fairs in the north, where they buy large flocks of Scotch wethers, to turn upon these commons, which they so effectually eat up, that regular breeding stocks of the country cannot be maintained to advantage, and therefore have greatly declined.

The principal obstacle to the improvement of the moors is the great expence of obtaining acts of parliament for the inclosures, and the difficulty of settling with the tithe-owners and lords of the manors.

An instance occurs in a township on the verge of the eastern Moorlands, where two-thirds of the number of freeholders, and considerably more in value, desirous of an inclosure of their commons, amounting to about 800 acres of fine sward land, and about 12000 acres or high moors, 4000 of which are capable of very great improvement, had agreed with the tithe-owner, and

signed a petition to parliament; but the lord of the manor, who possessed very little other property there, was determined to oppose it; so that from an apprehension of the expence and trouble attending an opposition in parliament, the business was dropped.\*

Many attempts have been made to improve these moors by cultivation, some of which have miscarried, while others have succeeded extremely well.

The southern side of the eastern Moorlands is well situated for lime, the basis of the improvement of those moors. The northern side is not equally fortunate in that respect, consequently improvements there must be much more expensive than on the south side.

The place where the late Sir Charles Turner commenced his improvements, is very disadvantageously situated, no lime being to be had nearer than the southern margin of the moors; it was nevertheless made use of in large quantities. The tract improved is extensive, probably not less than 1000 acres, exclusive of the plantations, the greatest part of which was originally as barren as any on the moors: since his death it has been much neglected, but plainly indicates the improvement which these moors are capable of receiving. On one side of the wall nothing is to be seen but ling, on the other side, a neglected pasture of 10 or 12 years ley, producing plenty of coarse grass, and very large rushes, here and there slightly interspersed with ling. Had this land been continued in a proper course of husbandry, it probably would have paid the occupier abundantly more, than it can do in its present state. I was credibly informed, that some of the fields whilst the ley was fresh, produced crops of hay equal to those on land of far greater value.

Large tracts of the eastern Moorlands were divided, and the more fertile parts inclosed under acts of parliament obtained

\* An inclosure of open fields, amounting only to about 150 acres in a township near to the above, was made a few years since, the expence of obtaining the act alone, and without any opposition, cost the proprietors £370.

during the last few years ; upon these several improvements have been made.

The following is an account of one made upon Lockton moor about six years since, the quantity 70 acres, which would not let for more than 1s. per acre before it was inclosed.

" Forty-eight acres were pared and burnt, and sown with rape (except about an acre sown with rye), the produce about sixty-quarters ; the rye grew very strong, and in height not less than six feet, and was sold while standing for five guineas. The land was only once ploughed, otherwise the crop of rape would probably have been much better. One hundred and twenty chaldrons (each thirty-two bushels) of lime were ploughed into the field, which for want of more frequent ploughing, probably was not of the service it otherwise might have been. Part of the land was afterwards sown down with oats and seeds ; the former of which afforded but a moderate crop, the latter a very good one, and has since produced two loads (120 stones each) of hay per acre. The seeds sown were rye-grass, rib-grass, white clover, and trefoil ; of these the first succeeded amazingly, the others not so well ; potatoes thrived very well ; turnips not equal to them. A farm has been built upon it, which now, along with 5 acres more of the same kind of land, is let on lease at £30 per annum.

" The soil consisted in general of bent peat upon a red grit-stone, with a mixture of clay upon lime-stone ; this last is in some places at a considerable depth, in others sufficiently near the surface for lime to be burnt upon the premises."

But the greatest and most profitable improvement I have met with, is one made by Richard Simpson at Saintoft, upon Pickering moors, of which he has given a circumstantial account in the following letter.

" Sir,

" According to your request when here the last week, I sit down to give you an account of the method I have pursued, to bring into its present state of cultivation the farm I now occupy, and which was allotted to me on the inclosure of the commons of Pickering and Newton. If you should think this account, or any

part of it, worth noticing in your Report, as being likely to be of use to other owners that have land of similar description, in its wild uncultivated state, it is much at your service.

" The allotment contained 315 acres, and was situated on the northern verge of those lime-stone heights, which border the valley in an east and west direction for above 30 miles, from near Helmsley to Scarborough. To the north of this tract of lime-stone (which in most places rises with a gentle slope from the plain of the vale, and bears a breadth of two or three miles), lies the wild and chiefly uncultivated tract called Black-moor, and which cannot contain less than 300 square miles, not one-tenth part of which is in a state of cultivation. The soil of the farm might be classed thus :

" Class 1.—100 acres pretty strong loam, of a moderate depth upon lime-stone.

" Class 2.—70 acres of a deep sandy soil, with more or less of a red-stone earth intermixed. These two classes were overrun with heath or ling in patches, with brakens (fern) and a tough mossy herbage intermixed.

" Class 3.—145 acres of a black moory soil, covered with a uniform coat of heath, with a few brakens, and here and there a few tufts of bent grass intermixed.

" But although the upper soil of this last class was nearly alike, consisting of half putrified heath, intermixed, like all the upper soil of the dry part of the moors, with black and grey gritty (chiefly silicious) sand, and had occasionally while common, been pared for turf for fuel ; yet the sub-soil in different parts varied materially, and on that difference of sub-soil I founded my hopes of improvement, and I was not deceived in the event.

" About 100 acres of this (class 3.), although the upper soil was uniformly black, and in some places two, in others from that to six inches thick, yet the soil beneath had every appearance of what (had it been on the surface) I should have called a light sandy loam, intermixed with a free-stone gravel, and had undoubtedly once formed the upper soil, before the ling or heath had encroached upon, and destroyed the other grasses, which in all pro-

bility existed there ; this is a process which is going on every day, and has undoubtedly taken place on most of the borders of the moors to a considerable breadth, for ling will thrive on almost any soil, and remarkably well on a light sandy loam, and being a perennial, and I may add, a permanent plant, retaining its stem and branches all the winter ; and its stems generally rising above the surface of snows, its seeds are carried thereon by the winds to considerable distances, where being lodged in the melting of the snows, and vegetating, the ling produced generally destroys the more tender grasses growing in its shade :—add to this, the soil produced by the gradual decay of the ling, becomes continually more fit for its propagation, and more unfit for the produce of almost every other species of vegetable.

“ The remaining 45 or 50 acres had an upper soil similar to the last described, and a sub-soil of a hard cemented grey sand, of a most unpromising appearance, as impenetrable to water as the closest grained stone, and almost as hard ; and what was worse, this stratum was too thick for the plough to penetrate through it. This is the worst species of land I have seen upon any part of the moors, for the produce of any kind of corn, even rye (except in patches) going off, before it shoots into ear, although remarkably healthy and vigorous until the period immediately preceding its shooting, which I suppose must be owing to its then sending forth roots to derive nutriment from a greater depth, and meeting with this sub-soil, totally unfit to afford that nutriment, it withers and dies ; this happens alike in a wet or a dry season : and yet even this land, where lime may be had at a moderate rate, may be appropriated to some purposes with benefit to the proprietor, for when pared and burnt and well limed, both white clover and rye grass thrive on it remarkably well.

“ I have been thus particular, because being well convinced that there are some thousands of acres on the borders of Black-moor, and in patches adjoining several of the small cultivated vallies that run through it, of a soil and sub-soil similar to the 100 acres of No. 3. above described ; and as this land, where lime can be had at any reasonable price, (say from 3d. to 6d. per bushel)

will pay very well for cultivation, being most of it fit for the produce of either rye, turnips, or oats, at the first ; and what is not so, being sown with rye, and laid down two or three years with grass seeds, will then produce turnips and oats ; and on all of it white clover and rye grass will succeed remarkably well, particularly the former ; I think, if the owners of such lands could be induced by a more minute examination of the soil, and more particularly the sub-soil, to bring them into a state of cultivation, it would not only be a benefit to themselves, but of public utility ; for in their present state they are worth a mere nothing, not sixpence an acre.

" Entering on the above farm in the year 1787, it was evident that the nature of the mossy herbage, intermixed with patches of ling, on even the best of the lime-stone and sandy soils, indicated paring thin and burning as the best husbandry ; so indeed I thought, and so in general acted ; but being a young farmer, and having frequently heard it asserted, " that to burn soil was to destroy it," I ploughed out 10 acres of the best herbage, and the most free from ling on the lime-stone soil without paring ; I may add, that I had sufficient cause to repent it, for I have not had even one middling crop from it since, and although laid down with seeds, they have by no means so good an appearance, as those sown the same year on similar soils, although I have expended as much lime and manure on this, as on any part of the farm.

" It appeared to me likewise, that paring and burning the black moory soil on a good sub-soil would answer a doubly good purpose ; for by paring tolerably thick and burning, I not only changed the worst and least putrified part of the soil into good ashes, rich in alkaline salts, but by so doing, I brought the sub-soil within reach of the plough, and could at pleasure mix it with the remaining black soil, and expose it to the influence of the air.

" I kept likewise another object in view, and that was to begin with a larger proportion of the best and most productive land, and a smaller of the worst, that by so doing, it might not only pay for its own cultivation and improvement as I proceeded, but

that I might get into a better stock of manure. The first year I pared and burnt 120 acres, viz. about 80 of the classes 1 and 2, and 40 of class 3; on most of this I laid three chaldrons (of 32 bushel each) of lime on each acre; but on part of it only 2; I was induced to do this because, although our present chemical knowledge of the properties and component principles of lime is very confined, and we are utterly ignorant of its mode of acting as a manure: yet it is known that lime and alkaline ashes mutually assist each others action, as manures, in a very eminent degree, and that if lime is intended to be used at all in a succession of crops, it is always best to lay it on with the ashes. On such part of these 80 acres that were got burnt, &c. previous to the beginning of May (about 14 acres), I sowed oats with once ploughing, and had a tolerable crop, viz. near seven quarters per acre. I sowed 40 acres with rape with once ploughing; produce in 1788, 160 quarters, four quarters per acre; the remaining 26 acres I sowed with turnips, ploughing once, and had a very good crop, which was eaten on the land with sheep, and was succeeded in 1788 with oats, above seven quarters per acre.

"The 10 acres I had this year ploughed out without paring and burning were a similar soil to the above 80 acres, most of it class 1. I sowed this with grey pease; produce not a quarter per acre.

"The 40 acres of class 3. I pared thick, burnt and laid about three chaldrons of lime on each acre; such part of this as had the best sub-soil I ploughed in May, and harrowed and cross ploughed the latter end of June, and sowed with turnips, which being a tolerably good half crop, were eaten on the land with sheep, and succeeded in 1788 by a crop of oats, of from five to six quarters per acre; being in want of herbage for sheep, I sowed down this field, about 14 acres, with seeds along with the oats, viz. white clover about 5 lbs. per acre, and the common hay-seeds of the country about 5 bushels per acre; they came remarkably well, and the year following this field was almost an entire sheet of white clover. One thing in this field deserves remark, about an acre of it of as good a soil as any of the rest was not limed; the consequence of which was, that although not

perceptible in the turnip crop, it was very much so in the oats, and still more in the grass seeds, very little white clover was to be seen; and now, although the other parts of the field is a tolerably good herbage, with a few thinly scattered small branches of ling coming amongst it, (owing, I suppose, to its not having been long enough in tillage to destroy all the roots of this hardy plant) yet that part of the field unlimed, is nearly destitute of herbage, and covered with beath.

" About 16 acres, other part of this 40, being of a somewhat inferior sub-soil, and the black moory soil of a greater depth, I sowed with turnips with once ploughing; these were a very poor crop, the bottoms in general not larger than the common hedge crab; they were eat with sheep in the autumn, and the land sown with rye, which produced about two quarters per acre; grass seeds were sown amongst the rye in the spring of 1788, in the proportions last mentioned; they came remarkably well, and the herbage the two following years was almost entirely composed of white clover.

" The remaining 10 acres was of the cemented sandy sub-soil above described, a little turnip seed was likewise thrown upon it after once ploughing, which produced a few dwarf tops, but no roots that were eatable; these tops or leaves were eat with sheep in the autumn, and the land then sown with rye, and with grass seeds in the spring following, in the same quantities as the last mentioned. Produce of rye six to eight bushels per acre, and these of inferior quality; the grass seeds came remarkably well; and even on this soil the white clover for the first two years was in far greater quantity than all the other grasses put together. The herbage of these 40 acres, as you would observe when here, (being adjacent to the farmstead) is yet of tolerable quality, but here and there is a sprig of young heath; I intend therefore to plough it out the next spring, and rehy it with grass seeds after another succession of crops.

" I proceeded in this manner in 1788, 1789, 1790, and 1791, in which year I had gone over all my farm, except a few acres situated on hill sides, the declivities of which were too steep for

ploughing; I constantly pared, burnt, and limeed as above, but varying occasionally the crops. What, after the experience I have had, I would recommend as the best course for a black moory soil, is to pare, burn, and lime, plough twice, and sow rye in the autumn of the first year; to fallow for turnips for the next crop. If a little manure can be had for the fallow, there is a greater probability of the turnips succeeding; and if manure is not to be had, the lime and ashes, with the melioration of the air the soil has already received, will render it much fitter for a crop of turnips than it was when newly opened. On these light, dry moory soils, the turnips should be constantly eaten upon the land with sheep, and may be succeeded with oats or rye, according to the better or worse quality of the sub-soil; with this first crop after turnips, the land ought to be sown with seeds, in which white clover and rye grass ought to be in the greatest proportion; in grass it should lay three, four, or five years as pasture ground, when on being ploughed out again for another succession of crops, as

Oats,	}	Oats.
Turnips,		Turnips.
Oats with grass seeds,		Rye with grass seeds;

and on the worst sub-soil, grey pease or rye; then turnips, to be followed with rye with grass seeds. It will be generally found that the soil will be in a much fitter state for the production of these crops than in the first succession, always remembering to lime for the turnip crop, and if to be had, to lay on a little manure likewise.

" As no more than two crops ought to be taken for one fallow on any light upland soil, perhaps the best mode of opening out lands of the description of class 1. and 2, is to pare, burn, and lay on three or four chaldrons of lime per acre with the ashes, to plough twice for turnips, to eat them on the land with sheep, and to follow with oats, &c.; and after one or two succession of crops, the land ought to be laid down with grass seeds, always remembering, whatever the succession, to lay down the first year after a

fallow, when after a few years rest, it may be *ploughed out* again with advantage.

" As the lands of class 1. and 2., and the better sorts of class 3. are brought to an immediate state of improvement, and the profits arising therefrom are evident from the bare inspection of the crops, it will be only necessary to compare the expence and improvement on the worst species of land in class 3.

	£. s. d.
" Paring and burning one acre, and spreading the ashes	0 18 0
3 chaldrons of lime, at 7s.	1 1 0
Leading and spreading ditto	0 6 0
6 ploughings for a succession of crops, as rye, turnips, rye	1 10 0
6 harrowings for ditto	0 12 0
Rye seed, and turnip seed	0 16 0
White clover, and grass seeds	0 10 0
Harvesting two crops of rye	0 10 0
	<hr/>
" First crop of rye 8 bushels, 2d crop 12 bushels, at 3s. 9d. per bushel	3 15 0
Eatage of the turnip crop, about	0 5 0
	<hr/>
	4 0 0

So that there will be a loss of £2. 3s. per acre ; but then it is to be considered that the herbage of the first 3 years is worth more than 10s. per annum, and that the soil by the operation of the lime is in a continual state of improvement, and has every appearance of being permanently worth 5s. per acre to farm. I own I should not have attempted to cultivate land of this last description, had it not unavoidably fallen within the ring fence of the farm, and being already inclosed, there was a greater probability of its paying for the improvement..

" The great error into which many in my recollection have fallen in opening out land for the first time is, the *ploughing out the tough mossy sward without paring and burning* ; the

consequence is, that for the first four or five years there is an almost total failure of crop, and of course a want of manure for the next succession ; this is done under the mistaken idea, that by burning, so much of the soil is almost totally dissipated and lost. Now although we are in want of experiments to make it evident, what greater proportion of vegetable matter is dissipated in suffering combustion with a slow fire, and in contact with earthy matter, than would be dissipated in the same, undergoing putrefaction ?— yet we know, that as all vegetable soils contain more or less of calcarious earth in its mild state, the subjecting this to the action of fire must increase its activity as a manure, by bringing it nearer to the state of quick lime, and that the silicious and argillaceous parts of the soil are not dissipated in burning.—Modern chemistry will throw much light on this subject.

" I am far from asserting that a soil will not become thinner by repeated burnings, but I am opinion it will not become so in the degree generally imagined ; and I am an advocate for only the first paring and burning of very old sward or heath.—But this letter is already become much longer than I first intended, you will therefore give me leave to subscribe myself

*Saintoft Grange, near*                    Your most obedient servant,  
*Pickering, 20th Nov. 1793.*                    RICHARD SIMPSON."

The following mode of improvement has been practised on the moors, which were inclosed a few years since, situated on the east side of Rosedale and Hartoft-dale.

The land being ploughed, is allowed to lie in that state one year, before the expiration of which it is limed and well ploughed, and then sown with rye if on a gravelly, and wheat if on a clay bottom. This mode of management is there thought to be more advantageous than any other.

A few improvements have been made upon the western Moorlands that have answered very well : every part of those moors being well situated for obtaining lime of the first quality ; this renders improvements easier and more beneficial than on the generality of the eastern.

A farmer who had an allotment of 300 acres on the inclosure

of a part of those moorlands, has given me the following particulars of his improvements.

" About 20 years since, most of the commons, I mean the high black mountain, in our neighbourhood, were divided by act of parliament; an allotment of about 300 acres fell to my share, which when inclosed by a ring fence, was not worth £. 10 a year. I subdivided this allotment into fields of about 15 acres, and undertook the cultivation myself, and having now improved more than 200 acres of it, I have let the whole at an easy rent, for £120. a year clear, to a good tenant.—Its ancient occupiers were plenty of moor game, and perhaps 100 Scotch sheep, worth about 10 shillings a piece, after being there two years. Of late years it has well maintained about 250 long-woollen sheep, 40 Scotch bullocks and 10 horses; the ewes with their lambs and the year olds, went to that high situation in April; the year old sheep were brought off at Martinmas and put to turnips; the ewes and lambs continued there till near January, when they were brought into a more sheltered situation, and remained there till April following, and then returned with their increase to the cultivated mountains: in March the wethers when only once shorn were generally sold for about 44s. a piece. The 40 Scotch bullocks on an average paid me for a year's keeping there, about 50s. a piece. The horses, in the breed of which our country I think shews more taste than judgment, frequently left me nothing.

" The produce of this tract when I began with it was ling, the soil chiefly a black peat earth six or eight inches deep; this soil if it had more substance is not unfertile. I burnt the ling, had no ashes; I then ploughed and harrowed in about five chaldrons of lime per acre, with turnip seed; had turnips worth to me 40s. an acre, which were eaten where they grew with sheep. In June the following year, I harrowed in about five chaldrons more, and sowed grass seeds, and to secure a succession of pasture grasses during the whole summer, I mixed rye grass, which came up first, with red clover and trefoil the second, white clover the third, and last of all feather grass,\* hardy on all soils, and by no means unprofit-

\* I apprehend my informant means by feather grass, *stipa pennata*, which is known to grow upon the summits of some of the most lofty of the north-

able, if properly managed. Lime-stone being on the spot and coals cheap, the lime stood me to no more than 5 s. a chaldron, of 32 bushels. Lime is the great instrument for binding, sweetening, and invigorating the soils in the situations alluded to, which on trial I found would not produce corn of any kind."

A very capital improvement was made about 20 years since, under the direction of William Dinsdale, on a large tract of the moors betwixt Hawkswell and Richmond :—the soil a black turf earth.

The ling being first burnt off, the land was ploughed in summer, and cross ploughed in autumn. In spring following it was limed, and after one more ploughing, sown with turnips, which were eaten off with sheep ; these were succeeded by oats, they by a whole year's fallow ; after which turnips were again sown, which being eaten with sheep, were succeeded by oats and grass seeds ; this new ley continued to be pastured with sheep for two years, and was then ploughed out again for oats.

A gold medal of the Society for the encouragement of arts and agriculture was granted for this improvement ; for a more particular account of which, see the Transactions of that Society, vol. 2. 1784.

Since the above improvement was made, several hundred acres of the same tract of moorland have been inclosed and improved in a similar manner.

It appears from the foregoing experiments, that many parts of those vast tracts of moors are capable of improvement ; but if the higher and more barren parts were planted, their shelter would considerably aid the improvements of the remainder.

Many parts of the western Moorlands might be advantageously stocked with rabbits, after the vegetable produce had been improved by the use of lime.

The primary object of the cultivation of these moors should not be corn, but food for sheep ; the former might sometimes be taken without disadvantage ; but two green crops, exclusive of corn mountains, but which I never before heard to have been any where cultivated.

temporary leys for two or three years ought to intervene between each crop of corn. By this mode of culture and the use of large quantities of lime, the land would be in a constant state of improvement, and would be found much more profitable, than when kept exhausted by repeated crops of corn.

The stock of the improved lands should be principally sheep, as the growth of winter food for them, and their consumption of it upon the ground are the most certain and expeditious means of improving them.

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### OPEN FIELDS.

Though this Riding possesses some extensive open arable fields, yet upon the whole the quantity is not large, and they are in some degree annually lessening by inclosures under acts of parliament, and would still more rapidly, but for the great expence of obtaining those acts.

The improvement made upon open fields and wastes after inclosure has been very great, principally by the adoption of the turnip and clover husbandry ; and by the cultivation of artificial grasses ; the stock has been greatly increased in numbers, and still more so in value, ~~and the crops of corn rendered~~ so much superior to what they were when the fields were in their open state, and fallowing was practised, that there is nearly as much corn grown as when the whole was arable. By inclosing waste lands, large tracts of very inconsiderable value are brought into culture, on which is reared or maintained a much more valuable stock than when they were in their original state, besides producing much corn, and increasing the quantity of labour.



